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TUMORS AND NEAR-TUMORS OF BONE*

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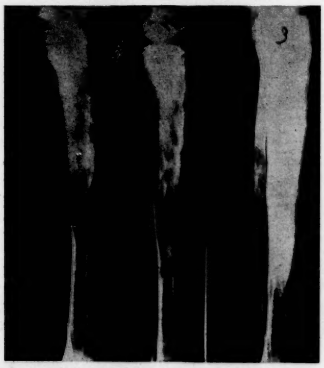
THAT'S the way I get them, and, oddly enough, see far more near-tumors and benign affairs than of the malignant cases. This may be because of much work done with osteomyelitis cases, or because I work in a City Hospital, or because I'm a known optimist if given half a chance!

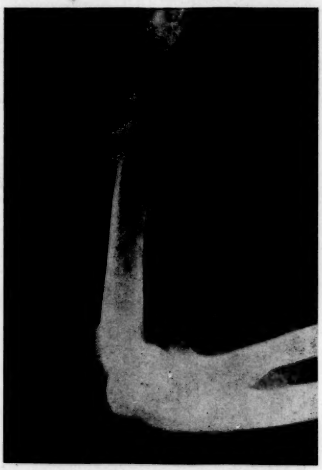
CASE 1. FIG. 1. Osteitis fibrosa—(diffuse). The small hole is not a cyst, but operative scar in the bone.



CASE 2. Osteitis fibrosa traumatica.
FIG. 2. CUT 1. Six weeks after trauma—3/31/23.
FIG. 3. CUT 2. After operation—7/17/23.
FIG. 4. CUT 3. Has continued entirely well up to April, 1931, when last seen.

What I'm going to present here is a rather strange hodge-podge of cases, interesting because most of them have fooled some of the good ones, x-ray men as well as surgeons.

Many of the slides are those shown at Baltimore. At that time Joseph C. Bloodgood,—broadcaster for better tumors, held a clinic. His office records 361 men registered, one or more from each state in the union.



CASE 3. FIG. 5. After fracture repair.

It was very interesting and I had an opportunity to show a lot of material that was collected for *this* meeting on an earlier arrangement.

For our purpose the cases have been roughly classified, but *no accurate* classification is possible with the little we know about these cases.

Available data cover just 70 cases.

Rokitansky started this classification long ago.

v. Recklinghausen was also busy long ago in the Vienna Museums, and published a description of "Osteitis Fibrosa Cystica," and an atlas which was not only convincing, but of an amazing beauty and quality of draughtsmanship.

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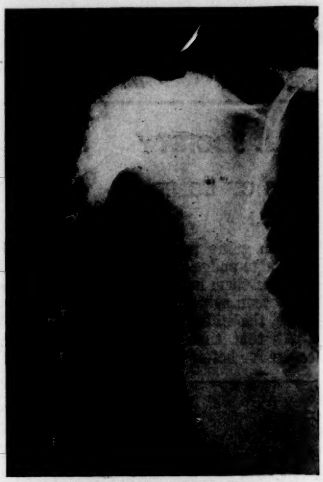
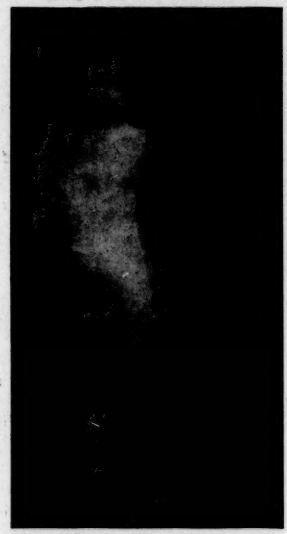


CASE 3. FIG. 6. Osteitis fibrosa.



CASE 4. FIG. 7. Osteitis fibrosa traumatica.

But—that is *not* what *we see*.

Just as Sud-Europa furnishes Osteomalacia cases that twist the human frame into grapevines which we do not see here and for which we are not responsible.

CASE 5. FIG. 8. Bone cyst: probably belongs in the o. fibrosa section. Operated on after the third fracture, all practically spontaneous.

Nine years before Dr. Butler had reported a cyst, or cysts involving the lower two-thirds of the radius. Operation proposed but declined.

At operation no sign of giant cell tissue.

Built a new radius but during convalescence she fell and sustained a supracondylar fracture of the same arm: healed promptly. The humerus showed the even overgrowth type of o. fibrosa: no cysts: no porosis.

What we see may be classified as osteitis fibrosa, acute traumatic osteitis-fibrosa, cases predominantly cystic, cases with marked fibrosis, and cases we can only call fibromata.

Cases essentially osteoporotic, some of them endocrine, chondromata of hand or foot or wrist, that probably do not belong here at all, but rather hark back to the class of vestigial remainders, or to the defects of epiphyseal growths.

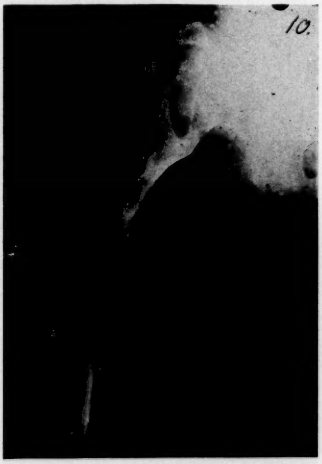
Chondromata, or hook-like bone growths, belonging to that weirdly named disorder, not disease, called multiple chondroma, or osteoma, or chondrodysplasia, etc.

So-called "giant-cell tumors"—with cells of

CASE 6. FIG. 9. Cyst. Spontaneous fracture. Boy of 16. Was opened up, cleaned out, packed. Did well. Later while still in protective Thomas splint sustained the fracture here shown which has never fully repaired. One operation since showing the remains of cyst.
No other bones involved.
Osteitis fibrosa, I suppose.

F. B. Mallory's "foreign-body" giant-cell type, not properly malignant, though with a tendency to recur locally, and with occasional very rare metastatic cases.

As against these, there is a type with cells of larger nuclei paler with more mitoses; that is frankly tumorous and malignant. Mallory has beautiful slides of such cases which are very rare.



CASE 7. FIG. 10. Osteitis fibrosa. Cyst. Pathologic fracture.

There are a very few cases of giant-cell tumor, exactly like the benign ones, which not only recur locally but also give metastases to lung and mediastinum. Not over a half a dozen such are recorded. I have one.

Then comes a series of cases between the tumor of "foreign-body" giant cell type, and the re-

CASE 7. FIG. 11. Postoperative—granulation tissue—not cyst—at second operation.

CASE 7. FIG. 12. Skull, same case.
Skull changes do occur, rarely, in what we call osteitis fibrosa, as well as Paget's.

sidual cyst, in which there are both fluid and tissue; tissue with giant-cells mixed in.

Then there are the cysts, those which very obviously originate in so-called "giant-cell tumors".

No doubt Dr. George Barrie's guess as to the fate of the giant-cell tumors which he called, with an odd inspiration, "osteomyelitis hemorrhagica", was essentially correct.

Trauma, intra-osseous hemorrhage, granulation tissue, destruction of calcium-containing bone, intramigration of "foreign-body" giant cells (their one function the absorption of waste calcium-containing tissue), growth to a point of

fracture, or of total loss of the containing cortex, with or without the doubtful advantage of x-ray treatment (which may hasten either cure or growth) or growth to the point of appropriate operation; (the swiftest and cleanest answer to

CASE 8. FIG. 13. February 3, 1930. Spontaneous fracture. Varied diagnosis. Dr. Frank Henderson operated. Clean, non-malignant fibroma. Repair.

CASE 9. FIG. 14. Giant cell tumor. Spontaneous partial fracture of shell.

CASE 10. FIG. 15. Typical "foreign body" giant-cell tumor of the jaw.

CASE 11. FIG. 16. Cyst. Very large. Operated on, treated protectively for months to avoid joint crumpling: excellent result.

CASE 12. FIGS. 17-18-19. Multiple secondary giant cell tumors of bone. Spontaneous fracture of the tibia.

the problem) most of these cases take one road or the other, to end in either cure by peaceful granulation and later ossification, with or without deformity, or else they go on to make cysts.

This type of cysts may live under conditions of overpressure and this overpressure must be

CASE 12. FIG. 18. The other tibia.

CASE 12. FIG. 19. Same case—two tibiae.

taken care of. Normally, their intracystic pressure is low, and a traumatic or operative break in the cyst-contour suffices to start granulation tissue and presently bring about a cure.

Barrie's theory, although valuable, does not cover all of the questions of giant-cells and cysts.

There are cases of giant-cell tumor, two of which will be shown, that tend to recur despite local operation, and very rare cases that give metastasis and death, of which I have one case. I have, also, one case of recurring cyst.

There are cases that show giant-cell growth, of the "foreign-body" type of cell, not included in surrounding bone at all. There are four in

CASE 13. FIG. 20. Spontaneous fracture lower thigh. Operated after four weeks. Typical giant-cell tumor.
Last heard from about seven years later as a promising law student at Columbia. On physical examination 100%.
Utterly a typical x-ray picture.

CASE 14. FIG. 21. Giant cell tumor of phalanx.

this list, and one of them was followed by bone-lesions that can only be called secondary.

Now all this seems reasonable; but there are cases, not a few, that are not reasonable.

We are confronted with the fact that the histologic picture of osteitis fibrosa is *exactly duplicated* in cases of Paget's disease, and in cases of quiet osteomyelitis with proved infection.

CASE 15. FIG. 22. Giant cell tumor of metacarpal. Operated on: graft set in. Recurrence of tumor about the uninvaded, healed-in graft. Second operation was wholly successful. Graft left in place.
X-ray taken before the second operation.

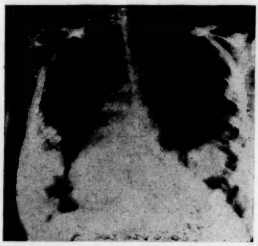
In Paget's disease we get giant-cell growth, cysts, what we call sarcomata, of low malignancy, and the "Paget's" cases grade down oddly into cases with so much porosis that one would say osteomalacia.

After all, the only reasonable conclusion is that we are dealing here with non-tumorous changes representing more or less normal reaction (endocrine and vitamin disturbance set aside for argument) to *a variety of stimuli, traumatic, hemorrhagic, degenerative, infectious.*

In common we have in these cases a reaction pretty uniformly favorable after relief of pressure conditions.

In common we have in all, or nearly all, of them, a difficulty of accurate distinction as against dangerous (the malignant) processes.

CASE 16. FIG. 23. Case M. Typical foreign body giant cell tumor of radius at wrist—recurred four times. Cured by resection but patient died, 18 months later, of lung metastases, presumably of same tumor: no autopsy.



CASE 16. FIG. 24. Case M. Metastases into lungs. Tumor of wrist typical giant cell—benign, but died of metastases. No autopsy.

CASE 17. FIG. 25. Cyst. Previously (seven years before) determined as a giant cell growth (supposedly malignant).
Note the distortion of the epiphyseal line, due either to tumor penetration or previous operation.
This x-ray taken *after* my operation, and some repair growth.

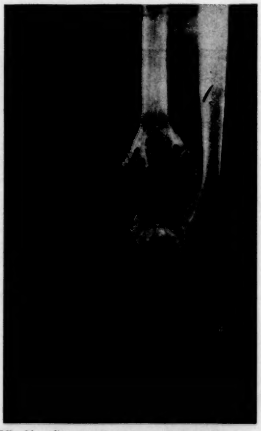
After the reading of the paper, slides[1] were shown and the following comments were made:

Case 1. Fig. 1. This is an osteitis fibrosa. This is the point: I went in and dug out the tissue and relieved pressure conditions. That is a comparatively common type. It is not, as a rule, progressive. It is troublesome. It very often leads to spontaneous fractures that are hard to understand. They go on to repair very

CASE 18. FIG. 26. C. H. Pure cyst with never any giant-cell content. Recurred twice with tension of fluid. Finally cured. 11/15/28. Later operation by Dr. Horace Binney.

CASE 21. FIG. 30. Case B: by the x-ray osteitis fibrosa. At operation proved osteomyelitis—(staphylococcus aureus) non-suppurative except for the tiny "Brodie's abscess" that furnished the culture,—and the clue.

CASE 19. FIGS. 27, 28. Case—July 14, 1926.
Tumor: presumptively osteogenic sarcoma, no biopsy, in a man of 60 who very shortly later developed typical Paget's disease with a pathologic leg fracture. Under radiation the tumor disappeared. The leg mended and he went back to Newport as a city laborer. No recurrence, for at least two years.



CASE 22. FIG. 31. Giant-cell tumor. Repeatedly recurrent and finally, through patient's stubbornness, came to invasion of soft parts: amputation. Histologically, definitely non-malignant.

CASE 20. FIG. 29. K. Fibroma: two spontaneous fractures before operation.

slowly: the opening up of the general mass of bone seems to slow up growth, even if it doesn't have an absolutely curative effect.

Case 2. Fig. 2. This is the postoperative picture of this case. This followed after trauma and had a big massive overgrowth of bone with a considerable absorption in places. It is rather a confusing picture. It came on about five weeks after the trauma.

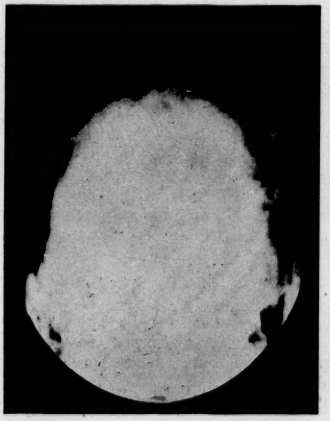
Case 2. Fig. 3. The same thing after the bone has been dug out. It shows the beginning of the repair.

Case 2. Fig. 4. Here is a clinical cure pic-

CASE 23. FIG. 32. D. Spontaneous fracture of clavicle, operated. Liver-cell tumor with bile content, outside the classical classification.
Spontaneous fracture of humerus.
Later, fracture of femur, metastases in chest, apparently somewhat delayed by x-ray treatment. No autopsy, but careful study of the two bone tumors.
A peculiar liver-cell tumor.

CASE 25. FIGS. 35-36. Myeloma.
FIG. 35. Before operation.
FIG. 36. Three years later.
The man, fine, big and husky, is on the job. He has a skull that may show metastases, and one wouldn't swear to Fig. 36. *But* so far, surgery and radiation have made good.

performed. She had a fracture of the humerus through apparently normal bone with trauma. It healed. From that point on it began to carry out this curious transformation of the bone. Three years later after that fracture had healed she broke the same humerus again down lower and has gone on all this time with no sign of any malignant change, these various cysts grad-



CASE 24. FIGS. 33-34. Pain in right shin. X-ray showed apparent osteitis fibrosa. Aroused by a "hunch" we had skull x-rays. Fig. 34.
Wassermann and Hinton tests positive.
Cure by injections, not operation.

ture taken two years later. That case has been followed for about six years. She shows certain changes in the other leg. No other bones have been involved so far as the x-ray or the clinical picture shows.

Case 3. Fig. 5. This is one about the diagnosis of which I am uncertain. This woman happened to have an intestinal cancer, about twelve years ago, for which resection was

ually lessening in size. This case I have not operated on.

Case 3. Fig. 6. Another view of the same case over a year later.

Case 4. Fig. 7. Here is another one of the traumatic cases, also acute, that was cleared out and showed also a clinical cure. No other bones involved.

Case 5. Fig. 8. This one came to me with

her third spontaneous fracture and there was a report from Dr. Butler nine years before. The plate couldn't be found but the report said it involved about two-thirds of the lower end of the radius in a multiple cyst. The condition hadn't changed in nine years. She had two fractures. She came to me the third time and was thoroughly opened up. During convalescence, she had a supracondylar fracture in that same arm. It showed a consistent *even* expansion of bone like that in Fig. 1. That healed. So far she has since been all right.

Case 6. Fig. 9. Here is one of the cysts you find in the upper end of the femur. A healthy boy about 15 at the time. Fracture was spontaneous. This x-ray shows condition after the disease had been cleaned out. He made an enormous amount of bone during the repair and then cracking began below. He was treated again and we repaired that without any difficulty, and he is going around in a Thomas brace with apparently a normal femur but without absolutely full repair. Plates more recent than this show repair about completed. No other bones are involved in this case.

Case 7. Fig. 10. Another case like the preceding one. Nothing else known to exist. He had a fracture in early childhood somewhere down the thigh, but was supposed to be normal before this second fracture happened. Trauma was slight.

Case 7. Fig. 11. I managed to get the leg straightened at the first operation. He repaired all except this hole which was supposed to be a re-formation of the cyst, which was apparently healed. The growth was opened a second time, cleared out, and only a granulation tissue mass was found.

Case 7. Fig. 12. Here is the skull, unmistakably a pathologic skull. The boy is only about 20 years old. He is a perfectly healthy fellow otherwise.

Case 8. Fig 13. Here is a case which is rather curious. It is a case Dr. Henderson had in the hospital. We all supposed it was cystic, with a spontaneous fracture. We found that the cavity was entirely filled up with fibrous tissue. It healed perfectly.

Case 9. Fig. 14. This is a typical giant-cell cyst. It has been cleaned out and for many years there has been a perfectly normal arm.

Case 10. Fig. 15. Here is another giant cell, this time of the jaw. I think we had some difficulty in being sure about the diagnosis of non-malignancy.

Case 11. Fig. 16. Cyst above the knee; (pure cyst) cleaned out with a very excellent result.

Case 12. Fig. 17. Here is another one. All these areas are of giant-cell tumor tissue. This case had the original growth in the upper jaw in the gum, but not in the bone. She has now had nine giant cell tumors, all typical, and two residual cysts showing no giant cells.

Case 12. Fig. 18. This woman is now up in the Provinces and I have no recent data. She had a spontaneous fracture of the tibia. In trying to get herself up from the floor she broke the humerus. I have operated on eight of the growths on her, and they have all cleared up, but more have appeared lately, I am told.

Case 12. Fig. 19. This same case. Two tibiae.

Case 13. Fig. 20. Here is a typical condition. This was a fracture from slight trauma in a healthy boy, and it proved to be a typical giant-cell tumor. That was about eight years ago. He has a perfectly normal leg, clinically.

Case 14. Fig. 21. Here is a giant-cell tumor leading to almost total destruction of the phalanx. She has been all right ever since the operation consisting of curettage and packing followed by prompt regeneration.

Case 15. Fig. 22. Here is an odd case, first operated on at the Children's Hospital. The giant cell tumor was cleared out and a graft put in. The graft, as you see, is intact with the giant cell tumor surrounding it. I cleared out the tumor, left the graft, and she has had no recurrence.

Case 16. Fig. 23. Here is a typical giant cell tumor, important because this case was operated on a number of times by various people, and finally came to an excision of the lower half of the radius, finally ending in death from lung metastases.

Case 16. Fig. 24. Same case. All of those specimens are in the keeping of the Massachusetts General and the City Hospital laboratories. Since her death we have been over the whole thing, and there is no suspicion that that growth is different in any way from the type of "foreign body" giant-cell tumor. There was, unfortunately, no autopsy.

Case 17. Fig. 25. Here is the end result in a case that was remarkable in its way, an absolute corroboration of Dr. George Barrie's theory as to these cases. This boy about ten years ago was operated on for what was supposed to be an osteomyelitis. The doctor blundered into what he didn't want, took specimens, and "backed out". The pathologist's diagnosis was a "giant-cell malignant" tumor which, of course, was wrong. Seven years later the boy came to me to be treated for bowleg. I got an x-ray. As to the bowleg, how much of it was due to the tumor, and how much to the operation, one will never know.

The remaining lesion was pure cyst (multiple) with no remainder of the original giant cell growth.

This x-ray was taken *after* my operation.

Case 18. Fig. 26. Pure cyst (recurrent).

Case 19. Figs. 27 and 28. Tumor, presumed

to be osteogenic sarcoma which appears typical. Clinical cure followed the application of x-ray. Before and after disappearance of the bulk of the tumor. A good deal of calcification remained.

Case 20. Fig. 29. Pure fibroma of phalanx.

Case 21. Fig. 30. Osteomyelitis diagnosed by the x-ray and histologically an osteitis fibrosa.

Case 22. Fig. 31. Giant cell tumor—stubbornly recurrent but without metastases.

Case 23. Fig. 32. Liver cell tumor, somewhat suggesting myeloma in gross character.

Case 24. Figs. 33 and 34. Syphilis is the proved cause, but so far as the tibia goes, it is much more the picture of osteitis fibrosa.

Case 25. Figs. 35 and 36. Myeloma head of humerus. Same case after operation and regeneration. In perfect health, apparently, five years later.

RESOLUTION SUGGESTING A CHANGE IN REGULATIONS FOR THE RECOMMISSION AND REASSIGNMENT OF OFFICERS IN THE ORGANIZED RESERVE OF THE U. S. ARMY

Whereas, The present Army regulations require that every medical reserve officer shall, during each five years' commission period, put in two hundred hours of military work, in camp, correspondence school, inactive training meetings, or similar military activity, or else become ineligible for renewal of his commission with assignment to an Organized Reserve Unit, and therefore revert to the "Auxiliary Reserve" in time of peace; and

Whereas, There are many highly trained, highly skilled and very active physicians who, as reserve officers, have been assigned as chiefs and other distinctly professional services, and in positions requiring special technical skill such as is usually possessed by specialists, carrying very little administrative responsibility, and whose professional duties in busy private lives make them especially well fitted for their duties in their army assignments, but whose same duties make it practically impossible for them to carry on military work in time of peace; and

Whereas, Many of these men and their valuable attainments are being lost to the Organized Reserve, although they are willing and anxious to serve their country in time of need and do not aspire to advancement in grade. Therefore, be it

Resolved, That the Medical Society of Virginia, desiring that the medical profession may be of the greatest service to our country, respectfully suggests that the best interests of the military service might be enhanced if the regulations regarding the Organized Reserve were changed to provide for the recommission and reassignment of officers holding assignments such as those mentioned in the second paragraph, even though they may not have completed the required amount of military work, and hereby recommend consideration of such change; and further be it

Resolved, That a copy of this resolution be sent to the Corps Area Surgeon, and the Commanding General of the 3rd Corps Area, and the Surgeon General of the Army, the officer in charge of Organized Reserves, Third Corps Area, the Adjutant General of the Army, the Chief of Staff of the Army, and the secretary of each State medical association.

(Signed):
W. A. Brumfield, M.D., *Chairman*,
G. A. L. Kolmer, M.D.,
Nelson Mercer, M.D.,
Committee.

A NEW NOMENCLATURE OF DISEASE

At the annual meeting of the National Conference on Nomenclature of Disease held at the New York Academy of Medicine in December, 1931, a new "system of defining more specifically all known diseases was approved by the delegates from national clinical organizations and governmental and statistical bureaus" was approved.

The list will be printed by the United States Public Health Service and submitted for trial by hospitals, public health services, the army, the navy, and Veterans' Bureau. After a year's trial it will be again considered and, if found to be desirable, will be revised.

Under existing conditions the records of some diseases cannot be of statistical value because the classifications are not alike in several instances.

The officers elected for the ensuing year are: Dr. Haven Emerson, president; Dr. Henry Christian, vice-president; Dr. E. H. Lewinski Gorwin, secretary; Dr. George Baehr, chairman of the executive committee, and Dr. Logie, executive secretary.

ETIOLOGIC FACTORS IN HYPERTENSION*

BY ROBERT STERLING PALMER, M.D.†

ABNORMAL blood pressure, broadly speaking, refers to systolic pressures below 100 mm. of mercury and above 140 mm. of mercury, hypotension and hypertension respectively. Clinically, hypotension, or abnormally low blood pressure, is acutely important in hemorrhage, shock, and myocardial insufficiency and chronically in prolonged infections such as tuberculosis. It is purely secondary and is dealt with through the primary cause. So-called essential, or constitutional hypotension, not infrequently found in asthenic individuals and rarely in robust athletic ones, usually is not in itself clinically important since there may be no symptoms, and since, when found after 50 years, it is associated with longevity and the absence of vascular lesions[1].

On the other hand, the problem of abnormally high blood pressure, including especially essential arterial hypertension or hyperpiesia, is a major one, rivaling that of cancer, because heart disease is the leading cause of death in this country and because, in 30 to 40 per cent of cases, heart disease is associated with arteriosclerosis or hypertension[2, 3]. The late or terminal events in the course of hypertension producing this large proportion of deaths and an unknown but certainly very considerable proportion of costly disability are congestive and anginal heart failure, renal failure or uremia, hypertensive encephalopathy, and cerebral accidents. The recognition and treatment of these affairs constitute at best, however, only symptomatic relief. If we hope to alter the progressive course of abnormally high blood pressure, we must understand the vascular mechanism involved, we must make an early diagnosis of the existence of this mechanism, and we must appreciate fully all possible etiologic factors.

The incidence of hypertension varies greatly with the particular group studied. About 10 per cent of male university freshmen will show systolic pressures over 140 mm. of mercury; about 2 per cent will have pressures over 150 mm. of mercury. The evidence indicates that those showing these pressures are somewhat more likely to show abnormal pressures ten years later, though many will be found normal[4]. In a group of over 5,000 white prisoners Alvarez found a few showing hypertension in early or middle life, but no considerable number of systolic pressures of 140 mm. or more are discovered until the 40 to 45 year age group is reached and the increase is not marked until after 50 years[5]. The systolic pressure increases gradually with age until the time of puberty, when there is a fairly marked rise, after which the average normal level remains stationary[6] until 40 to 50; at this age a certain number of individuals will begin to show abnormally high systolic pressures. In a hospital population, including out-patient department and wards, the age incidence of hypertension rises gradually and progressively until the age period 40 to 45, when there is a sudden rise in the curve. The onset of this marked rise occurs five years earlier for women than for men[7]. In general, essential hypertension may be found at any time from puberty onward, though it is most likely to be discovered after 45 years of age. In its earliest stage the chief characteristic is variability. At times it may be moderately or much increased, only to be followed by perfectly normal readings. The response to psychic or emotional stimuli is marked. This is sometimes called the spastic, variable, or youthful type of hypertension. It is very likely purely functional in nature at this stage and offers the best opportunity for successful management. The fact that hypertension may occur in young adults and the fact that it is a constitutional disease, as will be shown, are strong reasons for urging annual routine health examinations.

The underlying mechanism for the production of abnormally high blood pressure is an increased peripheral resistance. Physiologically blood pressure results from the influence of three main factors: the head of pressure or minute volume output of the heart, the viscosity of the blood, and the resistance offered to the flow of blood through the vascular system. Variations in caliber of the larger arteries are not such, as a rule, as to alter markedly the blood pressure, but as the vascular stream widens enormously into the minute vessels of the body, general and local alterations in the caliber of these vessels become of the utmost importance. The marked nonrhythmic variations in blood pressure observed clinically (spontaneous as well as the result of various stimuli), and the fall in blood pressure obtained under the influence of vasodilating agents, such as amyl nitrite, indicate the importance of vasoconstriction as a cause of hypertension. Moreover, the experimental work of Weiss and Ellis[8, 9] has confirmed the observation that other aspects of the circulatory dynamics remain normal in essential arterial hypertension while there is an abnormally increased resistance in the arterioles. It thus appears that the arterial hypertension is necessary to overcome this arteriolar resistance in

*From the Medical Clinic of the Massachusetts General Hospital.
The expense of this study was paid by a grant from the Proctor Fund for the Study of Chronic Disease.

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maintaining an adequate blood supply to the tissues.

The control of the caliber of the arterioles is exercised by the vasomotor nerves with centers in the medulla and spinal cord and possibly with autonomous peripheral vasomotor centers[10]. How large a part in vasomotor control is played by central nervous system impulses and how large a part by peripheral factors, such as changes in viscosity due to concentration and dilution of the blood in tissue nutrition and changes in blood chemistry, especially the influence of carbon dioxide and oxygen and the hydrogen ion concentration of the blood, remains a complex problem requiring solution before this mechanism of peripheral resistance in hypertension is fully elucidated.

It has long been recognized that certain strains of the human family and certain individual types are especially prone to develop vascular disease. One might say that some individuals inherit a predisposition to develop the particular circulatory response just described, provided proper additional stimuli are present. The first step in dealing with this disease, then, is to recognize the potential hypertensive by his family history and by his individual type and the second step is to arrange his life in order to avoid, if possible, those recognized factors which enhance the development of the disease.

Draper[11] has stressed the fact that the individual reacts to the environment both psychologically and somatically and that these reactions may, within limits, be so predicted that disease potentialities may be recognized. That the sympathetic nervous system apparently lies at the border line, as it were, between mind and body may be especially important in essential arterial hypertension. The sthenic or hypersthenic habitus, the florid face, short thick neck and full chest have always been associated in the minds of physicians with vascular disease. Draper[12] has found the morphologic signs of hypertensives to be tallness in women as compared with other disease groups; the skulls are larger and heavier with long mandibles; there is relatively greater length of long bones, hands and fingers; the girth of chest is greater. The males have characteristically wide set eyes, high arched palate, often narrow and sharply vaulted; the jaw is long and narrow; the face is large and florid. This disease group includes males relatively less masculine, so far as skeletal proportions go, while the females tend to virilism. It is frequently striking to note the family resemblance in women with malignant hypertension. As Draper points out, the face and head rather suggest acromegaly. Moschcowitz[13] has described well the mental reactions of these people. "Psychically they are the antithesis of the child. They do not play. They have no illusions. They are tense, are irritable, and have single track minds. While their mental horizon is narrow, within this range they are terribly tense and pursue their aims with a grim desperation." There are also the weak and unsuccessful ones for whom the continued failure in the struggle for existence constitutes the lifelong mental strain characterizing the victims of this disease. Given this particular type of individual morphologically and psychologically, and especially if there is a family history of cardiovascular disease, it becomes necessary to recognize all possible factors predisposing to the development of hypertension.

There are some conditions associated in such a way with hypertension that, in a manner of speaking, the high blood pressure may be called secondary. From this point of view secondary hypertension is found in acute and chronic glomerulonephritis, nephritic toxemia of pregnancy and eclampsia, obstruction in the urinary tract, in lead, arsenic, mercury, and copper poisoning, in increased intracranial pressure, possibly in some cases of localized cerebrovascular sclerosis[14], in congenitally increased peripheral resistance such as coarctation of the aorta[15]. There is also the paroxysmal hypertension of adrenal tumors[16, 17, 18].

Of far greater importance and interest than these causes of secondary hypertension are those factors which may be related etiologically to true primary or essential arterial hypertension. Among first causes, dietary and metabolic errors have been most frequently impugned. Animal experimentation[19] has indicated that diets high in protein may result in kidney damage and hypertension. It appears that this may be due not so much to the protein as to the effect on the acidity of the excreted urine; that is to say, those diets high in protein result in a more acid urine. These are known, in general, as acid-ash diets. It is doubtful, however, whether the results of these experiments carried out on herbivorous animals may be transferred to man, an omnivorous one. Clinically, Langstroth[20] has suggested that a cause of degenerative diseases including hypertension is that the average American diet is deficient in protective foods. Sansum[21] perhaps has been the chief proponent of the ill effects of the acid-ash diet and the lack of fruits. On the whole, the importance of acid-ash constituents of the diet has been overemphasized and furthermore, special restriction of protein, other than in renal failure to maintain a normal blood nitrogen, does not seem to be necessary[22].

The effect of acid-ash and alkaline-ash diet may be noted by taking the pH of the urine. If an acid-ash diet were responsible for the production or maintenance of degenerative vascular disease with hypertension, one might expect the pH of the urine to be more definite-

ly on the acid side than is the urine of those not suffering from this condition. The average pH of the urines of twenty-one patients with heart and vascular disease with hypertension was 5.94,—as it happened, slightly more alkaline than the average pH of twenty-four routine out-patients without hypertension, which was 5.78. It might be suggested that previous dietary errors and not present habits are responsible. To this there is no answer except that dietary habits in general are very likely to continue the same unless changed for definite reasons, which in these cases would probably be therapeutic. If it is proposed that an acid-ash diet might be responsible for the diseases in the control group, including tuberculosis, respiratory infections, constipation, duodenal ulcer, polyp of the sigmoid, gall bladder disease, epilepsy, obesity, migraine, fatigue, psychoneurosis, and no disease at all, one cannot hold it responsible for any special effect in hypertension unless one supposes that it has such an effect on those by inheritance and constitution predisposed to develop hypertension. The impression remains that the causal relation if any, between acid-ash diet and hypertension is tenuous and at least requires further convincing proof.

Vitamins are of great importance, but that the lack of these elements is responsible for degenerative disease, including hypertension, has not been demonstrated. Furthermore, it has been clearly shown by recent work[23, 24] that prolonged use of almost exclusively meat diets is without deleterious effect on normal individuals. Salt retention has been held responsible[25, 26] for hypertension. The evidence is conflicting[27, 28], but it is suggested that on restricted salt diets the favorable effect on the blood pressure may result from the general régime which is followed and on the loss of weight which accompanies it. Whether cholesterol may be of importance is not clear[29, 30, 31]. Its significance, if any, is probably more related to the production of arteriosclerosis than of hypertension. Some pressor substance in the blood or urine definitely related to hypertension has long been sought. Major and his coworkers[32, 33] believe they have found in the blood of patients with hypertension increased amounts of guanidine bases not found in the blood of normal people. Other workers[34] have failed to find evidence of pressor substances in arterial hypertension. While the possibility of such a factor being involved must be kept in mind, the actual presence and effect of such substances have not been conclusively demonstrated.

The second etiologic factor, strongly suggested by a number of clinical facts, is that endocrine dysfunctions may be associated with essential hypertension. The marked rise in pressure at puberty[6] and again the marked rise which occurs at 45 to 50[7] would indicate that onset of glandular activity, in the first instance, and increased, followed by decreased, glandular activity in the second instance have important effects upon the blood pressure level. Alvarez and Zimmermann[35] have shown that the blood pressures of sexually abnormal women average considerably higher than those of the sexually normal. They found evidence that essential hypertension is a bodily peculiarity inherited equally by males and females, but ordinarily prevented or repressed until the menopause in females by ovarian or other related glandular secretions. It is a well-known observation that hyperthyroidism increases the pulse pressure with an increase in the systolic level. In some cases of essential hypertension the symptoms and signs are such as to suggest an early or an incomplete Graves' syndrome.

Adrenalinemia has been proposed as a cause of essential hypertension, a theory to which support has been lent by the finding of adrenal tumors in paroxysmal hypertension, referred to above. However, animal experimentation indicates that absence of adrenal secretion has no effect on the blood pressure during the period of health preceding the final few days of terminal symptoms[36]. Altnow and O'Hare[37] could find no constant immediate effects on the blood pressure as a result of parathyroid administration.

The relation of pancreatic deficiency, high blood sugar, and hypertension has been much discussed. The incidence of diabetes is at an age period when one expects the appearance of hypertension. The consensus of opinion is that there does not appear to be any causal relation between high blood sugar and hypertension[38, 39, 40].

A number of miscellaneous possibilities require passing mention. One is that of Rappaport[41], who believes that high blood pressure may be related to diminished blood volume in the pulmonary circulation, usually the result of sedentary habits and increasing weight, with diminished chest volume, the result of obesity and consequent high diaphragm. Lintz[42] has commented upon the association of small lungs and large hearts at autopsy, while Vincent and Thompson[43], using a continuous blood pressure recording device, demonstrated a fall in blood pressure brought about by rapid deep breathing. There seems to be no doubt that blood pressure may fall, at least temporarily, as a result of forced breathing. What the relation of intrathoracic volume and of carbon dioxide concentration may be to this fact is not entirely clear. The subject requires investigation, but it would seem that help might be gained from tabulation of blood pressures in cases of Pott's disease or other deformities of the chest in

which the intrathoracic volume is definitely decreased.

The significance of infection, especially foci of infection, in essential arterial hypertension is possibly important, though it is difficult to prove a clear-cut case of cause and effect. There is some work to suggest that bacterial growth filtrates may cause hypertension[44]. Of the specific infectious diseases, syphilis has formerly been held to cause hypertension. The recent work of Horine and Weiss[45] would seem to demonstrate the absence of correlation between this disease and hypertension.

Waldbott[46] has reported the combination of allergy and essential hypertension in two families under his care, in which the occurrence was more than incidental. He has also reviewed some of the literature on the subject and points out that symptoms of essential hypertension are not unlike those found in allergic diseases. In his cases he felt that removal of allergic factors was responsible for a favorable effect upon the blood pressure.

There remain two factors which seem to be clearly associated with abnormally high blood pressure: obesity and nervous strain. Of the definite correlation between obesity and increased systolic pressure there can be no reasonable doubt[5, 47, 48]. It would seem to be almost the one certain factor in some cases. It is true that all overweight individuals do not have increased systolic pressures, but it is clear, nevertheless, that the incidence of hypertension in the obese is much higher than in those who are normal or under weight. Moreover, loss of weight is commonly followed by reduction of pressure in many cases. Whether this is an inherited constitutional trait and belongs to a consideration of the hereditary influence, or whether it is the result of acquired habits of living, it is difficult to say. In any case it is of great practical importance both in prevention and in treatment.

The least ponderable of the many possible causes of essential hypertension, one which lends itself least of all to measurement and record and yet one strongly supported by many clinical observations, is the stress and strain of intensely competitive living. The incidence of so-called degenerative vascular disease is increasing. This may be due to the broadened span of life made possible by more adequate treatment of other diseases and by reduction of infant mortality and may not be an absolute increase. That is, the explanation may lie in a shift in the age distribution of the population. In individual cases the effect of nervous and emotional strain and the load of responsibility often appears to be a striking one. Alvarez[5] found the mean blood pressure of some 5,000 prisoners, excused as it were for the time being from the necessity of earning a living, to be lower than that of their 400 guards stimulated by economic pressure and a somewhat hazardous occupation, factors of weight and age being taken into consideration. The rarity of hypertension among placid African natives, in spite of the prevalence of infection and constipation and in spite of a diet comparable in protein to that of the average European, has been pointed out[49]. The effect of climate in this instance may be important. While many things suggest that essential hypertension may be in part the result of nervous strain, it is well to recall the possibility that certain apprehensive and anxiety states may have an organic basis, possibly endocrine, possibly a fundamental disorder of the vegetative nervous system.

Because of the many etiologic factors which have been suggested in that group of diseases (including nephritis) associated with hypertension, a comparison has been made between 100 unselected consecutive ward cases of hypertension, 100 ward cases especially selected because of completeness of data in regard to possible etiologic factors, and 100 consecutive routine admissions to the medical wards, discarding only those with vascular disease and the very young (Table I). The first two groups should check each other against the error of special interest. The control group is only partially satisfactory since many had some definite, often serious, disease such as carcinoma, lymphoma, or cirrhosis of the liver, while there was the usual group of patients with peptic ulcer, cases for study, patients with psychoneurosis and a few organic neurologic cases. As indicated by Table I, the age distribution of the control group is not entirely comparable since the majority fall in the fourth and fifth decades, while the fifth, sixth, and seventh decades claim the majority of those in each group of hypertensives. However, most of the etiologic factors may be assumed to exist over a period of years so that certain conclusions seem to stand out. The two familiar and long-recognized factors of im-

TABLE I

AGES BY DECADES

	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	Total
Consecutive unselected cases of hypertension	1	3	10	24	34	19	9		100
Selected cases of hypertension		7	5	14	31	34	8	1	100
Control cases		4	30	36	15	11	4		100

portance are a family predisposition to hypertension and obesity. (Chart I.) The evidence from this series indicates that nervousness, neurosis, and apprehension are approximately one-third less common among ward patients with hypertension than among ward patients without hypertension; foci of infection are somewhat more common in those without hypertension; endocrine abnormalities among the females are about equally distributed between those with and those without hypertension; excessively hard work, physical or mental, syphilis, and abnormalities of pregnancy do not appear to be of significance.

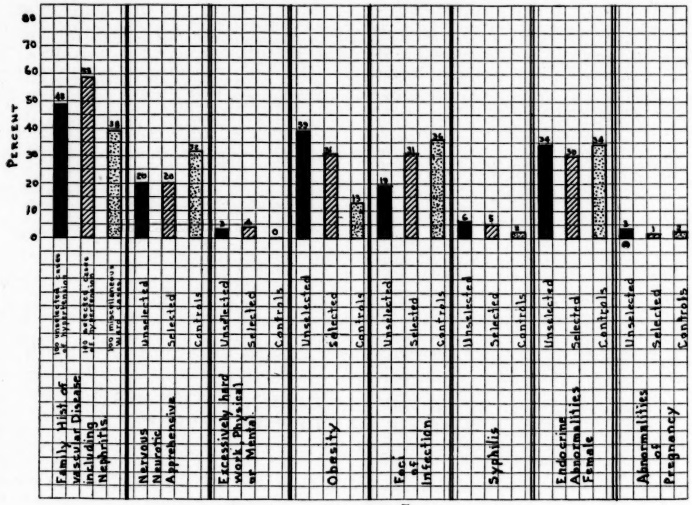

CHART I.

Chart I shows graphically the occurrence of etiologic factors in the three groups of cases studied, namely, 100 consecutive unselected cases of hypertension, 100 cases of hypertension especially selected because of completeness of data in regard to etiologic factors, and 100 unselected ward cases suffering from miscellaneous disease or in the hospital for study.

CONCLUSIONS

The two chief etiologic factors in hypertension are an inherited predisposition and obesity.

There may be many contributory factors such as dietary errors, endocrine dysfunction, diminished chest volume, foci of infection, allergy, and nervous strain, which may prove important in individual cases, but which are not generally significant.

The practical indications are to recognize the potential hypertensive patient from his family history, to guard him against obesity and to consider whether any of the above-mentioned contributory factors exist in that particular individual.

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INVOLVEMENT OF THE CENTRAL NERVOUS SYSTEM IN A CASE OF GLANDULAR FEVER*

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THE occurrence, in a typical instance of glandular fever, of marked cerebral symptoms sufficient at first to overshadow the underlying general disease process, is apparently unique in the medical literature. The subject of inflammation of the brain, "encephalitis", is one of the most difficult in the field of neuropsychiatry. The symptomatology is extremely varied. Study of the cerebral pathology and of the numerous etiologic agents which have been implicated brings us into much disputed ground. The relationship of encephalitis to general systemic disorders has recently been emphasized; postvaccinal encephalitis[1], the encephalitis of certain of the acute exanthemata[2], encephalitis in association with the clinical manifestations of various generalized infections[3, 4]. In an attempt to clarify the entire subject, Wilson[3] has drawn up a clinical classification of encephalitis stressing its close association with acute infections. Reiche[5] has described changes in the cerebrospinal fluid appearing simultaneously with the cerebral and meningeal symptoms of certain internal diseases. The occurrence of symptoms referable to the central nervous system in the blood diseases, especially in the leukemias, has been emphasized by several authors[6]. Although reports on glandular fever or "infectious mononucleosis" are numerous, none of them emphasizes the occurrence of neurologic symptoms and signs and we have been unable to find reference to spinal fluid findings in this disease. To be sure, indications for the performance of lumbar puncture in so mild a disorder have been rare. Only a few symptoms referable to the central nervous system are as a rule seen (headache, vertigo, occasional visual disorders). It is therefore all the more remarkable that in the case reported below, the nervous symptoms so dominated the picture that a diagnosis of the underlying disease process was at first obscured.

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REPORT OF CASE

P. B., a nineteen year old boy of Russian-Jewish parentage, was admitted in a stuporous condition to

the Boston Psychopathic Hospital on December 5, 1929. Family history was irrelevant. He had had "night terrors" as a child, but had otherwise been well until the onset of his present illness on December 1, 1929. On this date he awoke with severe headache, blurring of vision, photophobia, and general malaise. The next day he felt nauseated. Headache persisted and he became dizzy. On December 4, he developed a slight chill following which he was found thrashing about in bed, gnashing his teeth, and groaning. He soon became stuporous, although when aroused he appeared greatly excited. He was finally taken to the hospital on December 5.

Examination on admission was unsatisfactory due to the patient's lack of coöperation. He responded to questions by outbursts of profanity, and was extremely resistive. However, for the most part he was lethargic with definitely clouded consciousness. Rectal temperature was 103 degrees Fahrenheit, pulse had a thick "ground-glass" appearance. Occasionally the cytoplasm presented a deep-blue coloration. No granules were present. The nucleus was round, about one-half the size of the cell, and composed of thick, block-like masses of chromatin. It was usually placed centrally or just off centre. In all respects the cellular morphology was typical of the so-called large mononuclear described by Longcope as occurring in "infectious mononucleosis".

Lumbar puncture on admission revealed a clear, colorless fluid under normal pressure. Thirty-four leukocytes per cu. mm. were found; these were divided into lymphocytes 30 and neutrophiles 4. Total protein was .052 g. per 100 cc.; globulin was not increased. Sugar was .062 g. per 100 c.c. Culture showed no growth. The Wassermann reaction was negative, as was the colloidal gold curve. Urine showed a faint trace of albumin, urinary sediment containing 2-3 white cells per high power field. Stereoscopic x-rays of the skull were negative.

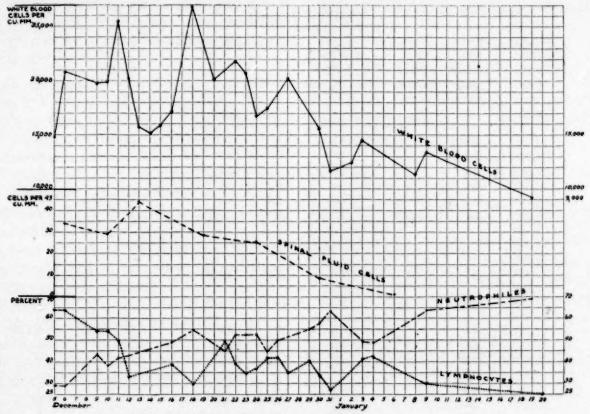

CHART I.

Correlation of total white counts, spinal fluid cell counts, percentage of neutrophiles and lymphocytes.

90 per minute. On December 7, the patient became more quiet and coöperative, thus allowing complete examination. There was slight ptosis of the right eyelid. The pupils reacted sluggishly to light and accommodation. The fauces were markedly injected, the tonsils large and reddened. The neck was definitely, though slightly, rigid. The spleen could easily be felt one finger's breadth below the left costal margin on deep inspiration. There was generalized enlargement of the lymph-nodes, particularly marked in the cervical regions. The nodes below the right jaw were tender. The others were moderately firm, elastic and non-tender. The deep reflexes were somewhat hyperactive. The Kernig and Oppenheim reactions were questionably positive on both sides.

Leukocyte count on admission was 14,900 per cu. mm. Differential count of the white blood cells was striking: neutrophiles 29%, lymphocytes 63%, monocytes 8%. The lymphocytes could easily be divided into two distinct types. The first of these was the ordinary small lymphocyte of normal blood —25%. The remainder of the lymphocytes (38%) was made up of large cells with abundant blue cytoplasm. In a number of these cells the cytoplasm

X-ray of the chest showed moderate thickening of the hila of both lungs.

On December 9, although the patient's sensorium was clear, drowsiness persisted. The tonsils were still red, boggy, and swollen and the cervical lymph-nodes were considerably swollen and tender. The neck remained rigid and the Kernig test was now definitely positive. On the following day, the temperature, which had been normal for two days, rose to 101 degrees Fahrenheit. There was constant headache and backache. Lumbar puncture was again done and showed 28 lymphocytes per cu. mm. On December 12, the patient felt much better. He presented a manic picture with considerable euphoria. The spleen was now no longer palpable, although the lymph-nodes remained generally palpable. The leukocyte count remained constantly elevated and the differential count of the white blood cells disclosed a relative reduction in polymorphonuclear cells with the presence of great numbers of large lymphocytes typical of those described above. Occasional lymphoblasts were seen. On December 13, the spinal fluid showed 44 lymphocytes per cu. mm. A transient Babinski response was noted on the right. The patient was much better on December

15, although there was still a marked tendency to euphoria which persisted for another week. The tonsils continued to be swollen and red, the cervical lymph-nodes were still somewhat enlarged and the leukocyte count was still elevated, ranging from 12,000 to 26,000 per cu. mm. Gradually the percentage of lymphocytes decreased, the large lymphocytes giving way to small cells. The cells in the spinal fluid gradually diminished in number. On the date of the patient's discharge from the hospital (January 11, 1930) he was completely well and showed no abnormal symptoms or signs. Leukocyte count was still somewhat elevated—13,600 per cu. mm.; differential count disclosing polymorphonuclears 63%; lymphocytes 30% (1% large); monocytes 5%; eosinophiles 2%. Urine was normal. Spinal fluid cell count was 2 per cu. mm. The patient was followed in the Out-Patient Department for several months after discharge and he remained entirely well.

DISCUSSION

The differential diagnosis in this case afforded much discussion. Epidemic encephalitis, tuberculous meningitis, syphilitic meningitis, an atypical anterior poliomyelitis, aseptic lymphocytic meningitis were all considered. The tonsillitis, the generalized lymphadenopathy with splenomegaly, and the abnormal blood picture were consistent with the diagnosis of either acute lymphatic leukemia or infectious mono-

TABLE I

BLOOD PICTURES

Date	White Blood Cells per cu. mm.	Neutrophiles Mature %	Neutrophiles Immature %	Lymphocytes %	Small	Large	Plasma	Lymphoblasts	Monocytes	Eosinophiles	Basophiles
12/5/29	14,900	29		63	38	25			8		
12/6/29	21,900	29		63	10	53			6	2	
12/9/29	19,800	43		54	14	40			3		
12/10/29	19,900	38		54	10	44			8		
12/11/29	25,700	32	9	50	5.5	42		2.5	8		
12/12/29	20,200	52	6.5	32.5	10	22.5			7	2	
12/13/29	15,500										
12/14/29	15,100										
12/15/29	15,900										
12/16/29	17,100	41	7.5	38	7.5	30.5			13	0.5	
12/17/29	16,900										
12/18/29	26,900	55	7.5	32.5	10.5	19.5	0.5		12	0.5	
12/20/29	20,000										
12/21/29	11,500	44		49	3	49			6		1
12/22/29	21,800	53		39	8	31			6	2	
12/23/29	20,700	53		35	14	21			8	3	1
12/24/29	16,600	53		37	16	21			8	1	1
12/25/29	17,500	45		42	14	28			4	2	1
12/26/29	12,100	50		42	10	32			5	1	1
12/27/29	20,200	59		35	7	28			5		1
12/29/29	12,100	55		40	9	31			4		1
12/30/29	15,400	57		33	24	9			8	2	
12/31/29	11,700	64		26	18	8			8	2	
1/2/30	12,400	38		56	54	2			4	2	
1/3/30	14,600	49		42	31	11			7	2	
1/4/30	18,900	48		43	29	14			6	2	1
1/8/30	11,400										
1/9/30	13,600	63		30	29	1			5	2	
1/19/30	9,200	68		26	20	6			6		
1/26/30	10,600	60		29	25	4			8	2	1
2/23/30	8,850	68		24	20	4			8		

TABLE II

SPINAL FLUID FINDINGS

Date	White Blood Cells per cu. mm.	Polymorphonuclear Cells per cu. mm.	Small Lymphocytes per cu. mm.	Large Lymphocytes per cu. mm.	Globulin	Total Protein	Sugar	Gold Sol.
12/6/29	34	4	26	4	0	52	62	Negative
12/10/29	28	—	24	4				
12/13/29	44	—	40	4				
12/19/29	28	—	24	4		48	68	
12/24/29	26	—	24	2	0	50	61	Negative
12/30/29	8	—	8	—	1	42		Negative
1/6/30	2	—	2	—		70	63	Negative

nucleosis. The subsequent clinical course resulting in complete recovery substantiated the latter diagnosis and served to rule out the other possibilities, particularly tuberculous meningitis.

Regarding "aseptic lymphocytic meningitis" described by Viets[7] and others[8], it is possible that the increase of lymphocytes in the spinal fluid may be associated with a lymphocytosis in the blood, although as yet this has not been demonstrated. Further, the concept of an aseptic meningitis is at best a vague one and almost as all-inclusive as the term "encephalitis". The latter, we feel, is hardly a specific disease entity but rather a wastebasket term for a great many diverse conditions. We prefer, therefore, to consider acute cerebral syndromes associated with changes in the cerebrospinal fluid as manifestations of some general systemic disease.

In this case, obviously, the acute neurologic condition and the lymphoid hyperplasia (lymphadenopathy, splenomegaly and lymphocytosis) must be closely related. Was the infectious mononucleosis primary and the cerebral condition secondary; were the two conditions entirely distinct; or did the same infectious agent bring about the two conditions? These are questions which cannot be completely answered at present, although the evidence in this case is suggestive of the latter view. The close parallelism between the cellular changes in the cerebrospinal fluid and the changes in the leukocyte counts is significant. (Chart I.) The simultaneous clinical recovery and the return to normal of the white blood cells indicate at least a temporal relationship. (Tables I and II.) Further, the acute onset of the disease with cerebral symptoms accentuates the reasonable possibility of involvement of the central nervous system even before frank signs of a general systemic disease were manifest. Finally, it is not unreasonable to suppose that the same infectious agent which caused the lymphoid hyperplasia also produced involvement of the central nervous system.

ADDENDUM

Shortly after this paper was submitted for publication, an article appeared in the *Acta Medica Scandinavica*, vol. 76, fasc. 3, 1931, by A. Hecht Johansen, containing a case report similar to the case herein reported and emphasizing the relationship between serous meningitis and infectious mononucleosis.

S. H. EPSTEIN, M.D.

SUMMARY

1. A case of glandular fever (infectious mononucleosis) with striking cerebral symptoms is reported.

2. A parallelism between the cells of the spinal fluid and the white blood cells in this case is demonstrated.

3. It is probable that the central nervous system symptomatology in this case was part of the general systemic disease.

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REVIEW OF FINDINGS OF COMMITTEE ON MEDICAL CARE, WHITE HOUSE CONFERENCE, FEBRUARY, 1931*

BY ROBERT B. OSGOOD, M.D.†

Ladies and Gentlemen:

I HAVE protested that I was not the best qualified person to present to you the work of the main Committee on Medical Care, because I represented only a sub-committee in relation to Orthopaedics and Body Mechanics. Nevertheless, even the little fishes who were drawn into the net of this huge endeavor were perforce in very close contact with the bigger fishes. If interest in the findings of the White House Conference, and enthusiasm for trying to make these seeds of knowledge bear the fruit of better child health give me a right to speak to you, I accept that right with pleasure. No one who has been immersed in this greatest of efforts to give the American child the fairest possible chance to be born, to grow, and to develop under those influences most favorable to health of mind and body, has felt that he was working independently. He could not fail to be made aware of the connecting links of the various sections of a protective chain by which it is hoped that in the near future the nation's children will be encircled.

In the time at my disposal, therefore, I shall try to outline for you very briefly; *first*, the medical needs of the child from birth to maturity as the White House Conference sees them; *secondly* the success or failure with which under existing circumstances those needs are being met, and *thirdly*, what, in the opinion of those who took part in the White House Conference, ought to be done to fill the many alarmingly wide gaps which have been discovered to exist in an ideally protective chain.

*Presented before the Massachusetts Committee for the White House Conference on Child Health and Protection, at its meeting in Springfield, October 9, 1931.

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EDUCATION OF THE CHILD HEALTH AGENTS

The public, the municipal, state and perhaps the federal government must hold various professional agents responsible for carrying out the measures for child health which the experts consider essential. Unless these agents have received adequate education, the scheme must fail. The architects may present faultless plans for the structure of child welfare, but only skilled craftsmen and craftswomen can erect the building.

Basically, therefore, it becomes of first importance to learn whether the fundamental teaching of these agents, the physicians and nurses and social service workers is adequate and whether the supply of personnel is sufficient. We will try to outline the findings and recommendations of the Conference in respect of these matters of education.

1. *The physician.* As Dr. Philip Van Ingen, Chairman of the Committee on Medical Care, has said, "The vast importance to the physician of thorough, practical training in the problems he must face, especially those connected with the promotion of health and the prevention of disease, has not been generally recognized in the medical schools."

Pediatrics has become a major department of Medicine, a specialty, if you will, but so necessary to the general practitioner and so inclusive that it must be recognized by general medicine and general surgery and all the other specialties as the basic foundation upon which any lasting and livable structure of medical education must be built. "The pediatric curricula of our medical schools need careful, thorough study and reorganization if the physician is to continue to keep his place in the field of medical care for children." The Sub-Committee on Pediatric Education under the chairmanship of Dr. Borden S. Veeder, Professor of Clinical Pediatrics in Washington University, found that the number of hours assigned to pediatric instruction and the number of children's beds in the affiliated hospitals available for teaching were far too few in many class A medical schools. Replies received from over a thousand practicing pediatricians revealed the fact that a large percentage considered that the pediatric instruction they had received in the medical schools had been inadequate, especially in relation to preventive measures, the care of the newborn and in physical and mental development. "Facilities for postgraduate instruction for practicing physicians, including extension courses, need to be further developed," and I should like to say that there must also be an awakening of a consciousness among this great bulwark of the medical profession of their need for such postgraduate teaching. This need must be converted into action and they must demand that adequate courses of this nature be made available by the medical schools and the great hospitals in medical centers.

2. *Nurses' training.* The skilful nursing of sick children is undoubtedly of importance. The supply of nurses specializing in pediatrics is so meager as to be almost negligible. The instruction of nurses in general in relation to the care of children has been discovered to be very inadequate in most of the training schools in this country, and few schools offer any courses for the care of the well child. The opportunities for special training for nurses in the increasingly important field of public health is admittedly inadequate.

3. *Social Service.* Medical Social Service work, when well conducted, has proved of inestimable value in enhancing the efficiency and humanity of hospital clinics, and yet except in a handful of schools, training in this field is obtainable only by the slow apprenticeship system. Great as is the harvest, well-trained workers are few.

4. *Dietitians.* The opportunities for education in the science of nutrition and diet seem to be rather more adequate, but the supply of trained workers is probably not sufficient.

MEDICAL FACILITIES AND SUPPLY

1. *Physicians and nurses.* The National Committee on the Costs of Medical Care and the Committee on Medical Care of the White House Conference have made a survey of almost every county in the United States as to the adequacy or inadequacy of the supply of physicians and trained nurses. These surveys have revealed an oversupply in some localities and an undersupply in others. The State of Massachusetts is not badly off in this respect. Its area is small; means of communication are excellent; roads and rails run everywhere. There are, however, a few communities, especially in the western parts of the state and perhaps on Cape Cod, where the supply of trained nurses is far too meager. Those of us who practice in large centers of population are often sure that the supply of doctors is excessive and the poorly trained nurses, especially the so-called private duty nurses as distinguished from the institutional and public health nurses, are really hard hit by an oversupply. The percentage of this oversupply at certain seasons reaches nearly 50 per cent.

2. *Hospitals.* In spite of the recent enormous growth in the number of public and private hospitals and a seemingly adequate number of children's beds, there is probably inadequate provision for the proper care of children in the way of special wards, and of a special pediatric staff. This is most true of many of the general hospitals. There seems to be far too little provision made for the convalescent care of children. Without this, much excellent acute hospital work is wasted.

We shall now attempt to epitomize the reports of the various sub-committees of the main Committee on Medical Care in order of their presentation at the sessions of the Conference held in Washington on February 19, 20 and 21, 1931.

PSYCHIATRY AND PSYCHOLOGY

Dr. Bronson Crothers, Associate Professor of Pediatrics at the Harvard Medical School, speaking for the Sub-Committee on Psychiatry and Psychology, made a strong plea not only for more teamplay between the general practitioner and the psychiatric specialist, but also for the acquirement of a more intelligent attitude and a working technique in Psychiatry and Psychology on the part of general practitioners and pediatricians. There may well be necessity for more thorough education in these truly medical branches in the medical schools, although at the present time about 80 per cent. of the medical schools offer courses, and in 75 per cent. these courses are required. Dr. Crothers pointed out the position of great power and dignity which the general practitioner can occupy, if he will, in these matters of child guidance. He is the first one called in and it is he who makes the first impression on the child and on the parent. Even if the family physician needs more highly trained help, he must look upon the psychiatrist whom he may call in, exactly as he looks upon any other consulting specialist, and the psychiatrist must coöperate completely with the family physician or pediatrist, who should remain the captain of the child's fate. There is a tendency to divorce the work of the one from that of the other. At present there is too much isolation of the psychiatrist. One sub-committee has reached the conclusion that 33 per cent. of all children need definite psychiatric consideration. While this percentage may be too great, it nevertheless suggests how large the problem looms in the minds of certain informed specialists. As Crothers says, "In any case, what all the figures show is that there is a very large number of children whose progress is viewed with anxiety by psychiatrists and teachers and that this anxiety is being communicated to parents. In the natural course of events the impact is being transmitted to doctors in general."

The sub-committee considers the organized psychiatric clinic as an experiment in medical education well worth the making for the purpose of accumulating records and for the training of workers. Psychiatric work, in general and children's hospitals, is favored because of the close association under the same roof of general medical men and psychiatrists and because of the opportunity such work affords for the education of students and house officers.

Dr. Crothers sees no satisfactory solution of the problem of child guidance "until the general practitioner and the pediatrist become psychiatrically intelligent and educationally sensitive". He is convinced that adequate medical service cannot be rendered to the child without due consideration of both intellectual and emotional factors.

NURSING AND NURSING EDUCATION

The report of the Sub-Committee on Nursing was presented by its chairman, Miss Stella Goostray, director of the Nurses Training School of the Boston Children's Hospital. This report represented a most exhaustive survey of the nursing situation and utilized much data collected by the national committee on the grading of nursing schools and the national Committee on the Costs of Medical Care. Good nurses are almost as essential to the health and well-being of the children of the United States as are physicians, for in private, institutional and public health work they represent the workwomen who must make or mar the architectural plans of the experts, and carry out the orders of the contractors who are the physicians. The sub-committee is not satisfied with the present nursing situation, splendid as have been the achievements of the various nursing organizations in raising the standards of trained nursing. It is aware of the oversupply of poorly prepared nurses and the undersupply of well-prepared nurses. This situation affects seriously the quality of pediatric nursing as well as the efficiency of all branches of nursing.

In the opinion of the committee, the underlying cause of poor nursing service in all branches, and especially of poor pediatric nursing, is the exploitation of student nurses for cheap labor in hospitals which are in no position to offer even reasonably adequate theoretical or practical instruction in the principles and practice of trained nursing. As Miss Roberts, Editor of the *American Journal of Nursing*, said in her discussion of the committee's report, "The real weakness of the schools of nursing is due to the fact that they are proprietary schools." With few exceptions they are owned by the hospitals and they have the disadvantage of institutions which do not exist for the primary purpose of education. The committee feels that the education of nurses is as much a public responsibility as is the education of such other professional men and women as physicians and school teachers, and that no hospital should be expected to bear the cost of the education of nurses out of funds collected for the care of the sick. Funds for such education should not come out of the hospital budget but from private or public sources.

The inadequacy of public health nursing is evidenced by the fact that there are at present, in the United States, 1800 counties which do not provide for any public health nursing whatsoever.

ORTHOPEDICS AND BODY MECHANICS

This sub-committee only briefly discussed the relation of Orthopaedic Surgery to the health and well-being of children, since it felt that the importance of this branch was being sufficiently emphasized by the committees dealing with the physically handicapped child. It is evident that in many parts of the country the cripple is still denied his place in the sun of efficient child health and that he has a right to demand this heliotherapy and corrective treatment not only for his own sake, but for the sake of the community which must otherwise support him. The progress in this direction is hopeful, but the problem is still far from solution. The main effort of the committee was to induce Pediatrics to acknowledge the legitimacy of one of its own children, to whom Orthopaedic Surgery for the last 200 years has acted as foster father. It has been a hard child to bring up, but seems now to be attaining a proper stature of importance, yet throughout the country it is still for the most part unrecognized and unacknowledged. The name of this child is Body Mechanics and its nickname is Posture. Andry, the aged dean of the Faculty of Physic in Paris, in 1740, was its proud father, and Preventive Medicine, which is Pediatrics, was its mother. Andry clearly showed in his two-volume thesis that many serious yet needless ills of childhood and adult life arise because parents and medical men are constantly forgetting that the body is a delicately balanced machine and that unnecessary wear and tear is inevitable if the machine is forced to run with its working parts out of alignment.

The sub-committee, after analyzing various surveys, reached the conclusion that at least 75 per cent. of the children of the United States, and nearly the same proportion of adults, exhibit faulty body mechanics and posture. The physiologic and clinical evidence seems to show that faulty body mechanics exerts an unfavorable influence upon growth and development and tends to induce poor functional health, and that good body mechanics exerts a favorable influence upon growth and development and tends to induce good functional health. The causes of this huge national handicap need further investigation, but it has been clearly proved that whatever its underlying causes may be, it is not inevitable and that it is possible and practical to remove this handicap. Studies of considerable groups of children and adults show that once faulty body mechanics has been corrected and the principles of good body mechanics are understood, the correction in the great majority of individuals is easily maintained under normal conditions of life.

The sub-committee discovered that only in widely scattered and small sections of the country was any serious attention being paid to body mechanics, but that in these sections the rewards of effort were really great.

It recommends that instruction in body mechanics be made an integral part of the required course in all medical schools under the departments of general medicine and pediatrics, as well as in the departments of orthopaedic surgery; that nurses also receive instruction in this subject; that the schools of physical education recognize body mechanics as a basic principle and as the foundation upon which all physical therapy and corrective work should rest; that all public and private schools, starting with the kindergarten, should recognize its importance to the health and well-being and even the athletics of their pupils and that clinics in body mechanics and posture supervised by physicians and conducted by adequately trained directors be more generally established in hospitals and health centers throughout the country.

The most important recommendation of the committee is, that general practitioners and pediatricians make note of the body mechanics of their patients in their regular physical examinations, informing themselves perhaps of the more or less standardized grades of departure from the normal and of the practical measures of correction. The sub-committee is convinced that if the handicap of poor body mechanics can be removed from the children of the United States, we shall eliminate a serious obstruction blocking the road to physical fitness. We would go even further, reminding you that body and mind are inextricably tied together in this life. Every sculptor and every artist has immemorially expressed alertness and elation by figures of physical efficiency, and sloth and depression by figures exhibiting poor body mechanics. If this widespread handicap can be overcome, and it can be, we may reasonably hope for a smaller breed of pessimists and a larger breed of optimists.

The Sub-Committee on Hospital Service to children in the United States, of which Dr. Clifford G. Grulee, Clinical Professor of Pediatrics at Rush Medical College, was chairman, has made a very extensive study of the present hospital facilities for children in the United States. It appears that the number of beds for white children is not far from adequate, but they are too seldom controlled by a pediatric staff. There exists a woeful lack of beds for sick colored children and there are too few beds for children suffering from mental and venereal disease. The value of medical social service work for children is evident from the survey. The committee finds it hard to see how any dispensary service can function efficiently without it, yet only 10 per cent. of the general hospitals and less than half of the children's hospitals of the United States provide it.

The need for isolation hospitals is great. There are 86 in the United States, with a total of 4,722 beds. The need is not so much for more beds in the larger hospitals as for a wider distribution of beds in the smaller hospitals.

There is a crying demand for more convalescent hospitals for children. Dr. Adrian Lambert has stressed this need, which is often very acute, for orthopedic patients. There are about 4,000 beds for sick children in New York City and only 2,000 for convalescent care. Convalescent care is less expensive than acute care and is often quite as important.

The committee urges the establishment of more health clinics, more body mechanics and posture clinics and more dental clinics, and might well have added clinics for the deaf, for as Dr. Harold Walker stated, there are 3,000,000 deaf school children in the United States and the problem of their distressing handicap can be solved only by preschool recognition and prevention.

The report of the Sub-Committee on Health Centers was presented by Dr. J. Mason Knox, Chief of the Maryland Bureau of Child Hygiene. The members of this committee were unanimous in their opinion that the experimental stage of these centers had nearly passed and that this form of health service for children had become an approved adjunct in the field of child hygiene. The periodic health examination is now generally accepted as a wise measure of prevention, and the health center provides an ideal means to this end for the poorer classes. If anyone doubts the advantages and far-reaching influence which well-conducted health centers exert in a community, he should visit the Boston Health Units made possible by the bequest of Mr. George Robert White and administered so effectively by Dr. Charles Wilinsky.

NUTRITION

The sub-committee on the problems relating to nutrition, whose chairman was Miss Lucy Gillette of the Association for improving the condition of the Poor and superintendent of its Nutrition Bureau, reviewed the importance of nutritional work in the American Red Cross, the coöperative Extension Service in Agriculture and Home Economics, the various city and state boards of welfare, commercial organizations, hospitals, health centers, etc., and urged that nutrition be recognized as a basic part of every program for child health and protection. The so-called nutritionist should have a thorough basic training. Of the 391 nutritionists questioned, 360 held bachelor's degrees, so that the present standards seem high, but there are probably too few who bear them.

One of the most interesting and alarming sessions of the congress was the general session on Thursday evening, February 19, 1931, presided over by Dr. Ray Lyman Wilbur, Secretary of the Interior. Dr. Philip Van Ingen, chairman of the Committee on Medical Care, was the first speaker, reporting on a unique survey which had been made with the help of Dr. George T. Palmer, Director of Research of the American Child Health Association. In this survey, which covered different areas of the United States from coast to coast, a study was made of the number of children who had accepted preventive health measures. Data were obtained concerning 140,000 children in 146 different cities and concerning 37,000 children in rural districts. This cross section study probably presents fairly reliable data for the whole country.

The findings are surprising and disconcerting. Only 51 per cent. as a gross average of the city children and only 37 per cent. in the rural districts had ever received a health examination and most of these examinations were made in the first year of life. Only 13 per cent. in both city and rural districts had received dental examinations, yet dental caries afflicts 95 per cent. of the children of the United States, and it is largely due to faulty food. Few physicians are awake to the prevalence of dental caries or accurately informed as to preventive methods of feeding. The figures on vaccination against smallpox, and diphtheria immunization are still more startling. Only 22 per cent. of the city children and but 7 per cent. of the rural children had been vaccinated, and only 22 per cent. of the city children and 18 per cent. of the rural children had been immunized against diphtheria. In the face of these figures we know that 55,000 cases of unnecessary smallpox occur each year in the United States and that in 1928 there were 5,000 seemingly unnecessary deaths from diphtheria of children under 5 years of age. As Dr. Van Ingen says, "Here is a challenge to every community which it is able to accept and with the surety of surprising results." It may be remarked in parenthesis that the figures collected in Massachusetts, with one or two exceptions, are not figures in which our communities can take pride, and that neither of these exceptions is Boston nor Springfield.

We should like to conclude this very fragmentary review of the work of the Committee on Medical Care by quoting a few sentences spoken at the last session of the conference by the chairman of the whole Medical Section, Dr. Samuel McClintock Hamill, whose sight was always far-reaching, whose executive ability was outstanding, and whose patience and consideration were constant to the end.

"This is a coöperative age. It is being stressed in nearly every field of endeavor, but curiously enough, this committee has found a great scarcity of communities in which health agencies are coöperating. The various organizations seem jealous of each other's prerogatives, and unfortunately competition far too often replaces unified coördinated effort." * * * * *

"Knowledge is useless if not applied. The section is unanimous in the opinion that a properly organized "follow up" which will put into

action the information that has been acquired is of vastly greater importance than the mere collection of facts."

Ladies and gentlemen, this "follow up" is up to us and up to you. It is our duty to pledge ourselves to it.

NEUROLOGIC PHENOMENA IN THE COURSE OF THE TREATMENT OF DIABETES

BY M. CRISCITIELLO, JR., M.D.* AND EDWARD R. MESSER, M.D.*

HYPOGLYCEMIA, whether spontaneous or produced by hyperinsulinism, may be accompanied by many and varied neurologic and mental disturbances. There is little doubt that many such reactions are not recognized and it is with this thought in mind and with the hope that attention will be drawn to this fact, in treating diabetes, that the following case is presented.

The patient, D. D., was an unmarried woman, aged 50. She first became aware that she had diabetes during the month of December, 1926, four years before admission to the hospital. For several months previous to entry she had not been holding to her diet rigidly and on Christmas Day, 1930, the day before admission, she had a large dinner, including gravies and desserts. Christmas night she felt nauseated and vomited several times. The following morning she was very drowsy, vomited, and during the afternoon became comatose and was taken to the hospital.

Physical examination showed a woman quite undernourished, restless and irrational, with air hunger, a rapid pulse and a strong ketone odor to her breath. Her blood pressure was 130/70, and there was no evidence of arteriosclerosis; the rest of the physical examination was negative. Blood sugar estimation at that time by the micro method showed 800 mgs. and a catheterized specimen of urine showed 20% sugar with four plus diacetic acid and acetone. She responded well to treatment and on the morning of the twenty-seventh was decidedly better, though she complained of headache, nausea and weakness. The blood sugar, at this time, by the Folin-Wu method showed 90 mgs., a decided drop from the night before, and the urine showed 10% sugar and still four plus diacetic acid and acetone. During the next few days she improved to such an extent that she could take solid food.

Because the morning blood sugar estimations were high and because the urine still contained much diacetic acid and acetone, she was put on a diet rich in carbohydrates and was given about 50 units of insulin daily, divided into small doses, including one dose of 10 units at 2 P. M. On December 31, five days after admission, at 5 P. M., she had a slight insulin reaction, which manifested itself by weakness, hunger and perspiration. The patient had had insulin reactions on other occasions at home and realized what was going on so she asked for some orange juice and her symptoms soon disappeared. Because of the reaction at this time in the afternoon, the 2 o'clock dose of insulin was omitted; instead, she was put on a schedule of 20 units before breakfast, 15 units before dinner and 15 units before supper. On this schedule the patient did well for two weeks, was up and about and became more active each day. There was no material change in her diet during this period; it was high in carbohydrates, because the urine still showed a trace of acetone. The morning blood sugars ran between 300 and 400 mgs. per 100 cc.

On January 16, three weeks after admission, at about 5 P. M., she complained of numbness and muscular weakness in the right hand and had difficulty in her speech. However, she was given the usual dose of insulin, ate her supper, felt relieved and had a good night. The following morning, January 17, there was no vestige of numbness. She was up and about that day, but about 5 o'clock in the afternoon she again complained of numbness and weakness in the right hand; she also said that the hand felt cold and she asked for a hot water bag. Again she was given the usual dose of insulin followed by her supper, which she ate. She was soon relieved, but at 11 P. M. the numbness and weakness returned and again were apparently alleviated by applying the hot water bag. She was asked whether she had ever felt like this at any time before, and whether these symptoms were anything like insulin reactions she had experienced on other occasions; she replied in the negative.

On the morning of January 18, the numbness had disappeared and the blood sugar showed 340 mgs. She was given the usual dose of insulin, morning and noon, and ate breakfast and dinner. At about 5 P. M. she again complained of numbness and weakness in her right hand and arm and had difficulty in speech. She was given the usual dose of insulin but ate only a small part of her supper and was given some orange juice. At about 7 P. M.—2 hours later—she lost complete use of her right arm and leg and had paralysis of the right side of her face; there was loss of the knee jerk in the right leg, a positive Babinski of the right foot and loss of abdominal reflexes on the right; a picture of hemiplegia. There was no amnesia. This lasted approximately two hours, after which she had a good night. The next day, January 19, she was rather comfortable on the usual insulin schedule.

On January 20, at about 4:30 P. M., she again began to lose the use of the right side and complained of numbness also in the left hand. The following is an abstract of a neurologic examination made at this time:—

> "A woman lying in bed, apparently very weak; her right pupil slightly larger than the left; slight ptosis of left lid; slight weakness of left face and tongue; speech thick and indistinct, though the patient did not seem aphasic at the time of a short conversation with her; right arm weaker than left; very poor coördination in both arms; arm jerks on right less than on left; left arm jerks about normal; abdominal reflexes negative; marked weakness of both legs; cannot lift either heel to knee; right weakness greater than left; no coördination in either leg; slight Babinski on right; pseudo-clonus on the right; tuning fork felt on both sides, less marked on right than on left; joints' sense of big toes impaired.
>
> "Impression:—Sub-cortical lesion."

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From the neurologic findings it seemed that the lesion was organic and vascular in nature; because of its more or less transient character and tendency to clear up after a period of a few hours, and because of the low blood pressure, the findings were believed to be due to angiospasm rather than thrombosis or hemorrhage. That evening the patient was unable to eat her supper but did receive 15 units of insulin and, therefore, was given some orange juice. At 8 o'clock she felt better and slept well until about 10 P. M., when her breathing became heavy and she went into a series of convulsions. A catheterized specimen of urine at this time showed no sugar. Between the convulsions she was given some orange juice and soon the convulsions ceased and she fell into a sleep.

The next morning, January 21, she was feeling fairly well and had no signs of paralysis; her morning blood sugar on this date showed 400 mgs. She had her usual morning and noon doses of insulin and had a good dinner; at about 4:30 in the afternoon she began to feel numbness and weakness in both arms. A catheterized specimen of urine showed no sugar and the blood sugar estimation at this time showed only 35 mgs. No insulin was given before her supper, which she ate, and in addition she was given some orange juice. The numbness quickly disappeared and she had an uneventful night. The next morning, January 22, blood sugar estimation showed 500 mgs. She was given 20 units of insulin in the morning; the noon dose was omitted, and since the urine before supper showed no sugar, the evening dose of insulin was also omitted. She had no untoward symptoms of any sort and slept all night. Hereafter the noon dose of insulin was omitted. She had no more paralyses or numbness, and continued to improve, being discharged from the hospital on February 4, 1931, on a diet made up of C 109, P 66, F 119 with 19 units of insulin before breakfast and 14 units before supper. She has been well since she has been at home, has gained several pounds and shows no traces of paralysis.

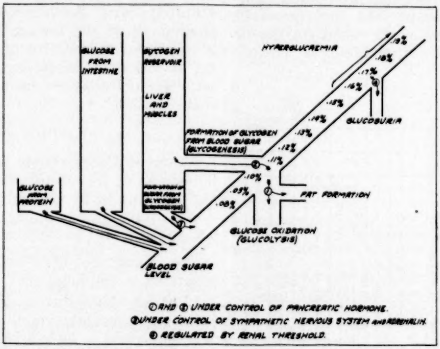
GLUCOSE FROM INTESTINE
GLYCOGEN RESERVOIR
LIVER AND MUSCLES
HYPERGLUCAEMIA
GLUCOSURIA
FORMATION OF GLYCOGEN FROM BLOOD SUGAR (GLYCOGENESIS)
GLUCOSE FROM PROTEIN
FORMATION OF SUGAR FROM GLYCOGEN (GLYCOGENOLYSIS)
FAT FORMATION
GLUCOSE OXIDATION (GLUCOLYSIS)
BLOOD SUGAR LEVEL
① AND ② UNDER CONTROL OF PANCREATIC HORMONE.
③ UNDER CONTROL OF SYMPATHETIC NERVOUS SYSTEM AND ADRENALIN.
④ REGULATED BY RENAL THRESHOLD.

FIG. I. Schematic representation of glucose metabolism. (After Ringer and Baumann.—Endocrinology and Metabolism, Appleton.)

COMMENTS

This case presents several interesting aspects of diabetes. In the first place, we had a diabetic who digressed from her diet and developed coma. Insulin came to her rescue and saved her life. However, if insulin has been a boon to the diabetic, it has also made the treatment of diabetes more complicated and difficult. This case brings out the fact that both patient and physician must not only be on the watch for the ordinary signs of insulin reaction, but must be always on the alert for any rare and unheard of manifestations.

The enormous variation between the morning and afternoon blood sugar, as, for example, on January 21 and 22, is also of interest and importance. In order to have a better understanding of the fluctuation, a brief résumé of the carbohydrate metabolism will not be amiss at this point. The different factors involved in maintaining a normal sugar level are schematically represented in Figure I. A study of this diagram will show that insulin, or the secretion from the islands of Langerhans of the pancreas, plays a very important part in maintaining this level.

The action of insulin is usually immediate, but the maximum effect may not be reached for about an hour and may last from 6-8 hours. The patient presented here was given, on January 21, 15 units of insulin in the morning and 15 units at noon; at about 5 o'clock in the afternoon she exhibited an accumulative effect from the morning and noon doses and developed hypoglycemia with its resultant neurologic manifestations. In other words, by 5 o'clock in the afternoon the morning and noon doses of insulin had built up so much glycogen and oxidized so much glucose that, in spite of the high concentration in the morning, it was reduced to only 35 mgs. On the other hand, after the effect of these doses of insulin had worn off, toward early morning, the glycogen stored up in the liver and muscles became hydrolyzed, glucose was formed and poured into the circulation and hence 500 mgs. of sugar were present in the

blood the following morning. After the noon dose of insulin was omitted no such accumulative effect took place, the patient did not develop hypoglycemia toward evening, and there were no more reactions of any sort. This shows that morning blood sugar estimations in a diabetic without afternoon check-ups may be deceiving.

Why did this patient do well on a certain diet and insulin schedule for about two weeks and then, without any change in the diet or the doses of insulin, gradually begin to develop hypoglycemia? Two main reasons stand out. In the first place, as the patient became more active, more sugar was utilized and, therefore, there was less left free in the blood for the insulin to act upon. The other factor which con-

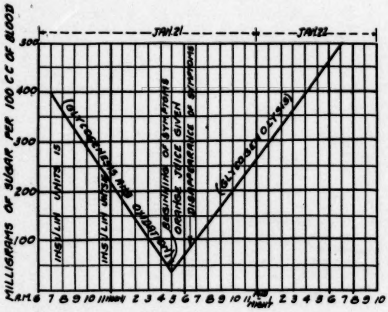
MILLIGRAMS OF SUGAR PER 100 CC OF BLOOD
300
400
300
200
100
INSULIN UNITS 15
INSULIN INJECTED
INSULIN INJECTED
GLYCOSURIA
GLYCOSURIA STOPPED
A.M. 6 7 8 9 10 11 Noon 2 3 4 5 6 7 8 9 10 11 Night 2 3 4 5 6 7 8 9 10

FIG. II. Showing marked fluctuation of blood sugar concentration during twenty-four hours.

tributed toward the development of hypoglycemia is the alleged effect of undernutrition upon glucose tolerance. A discussion of this subject is beyond the scope of this paper and the reader is referred to the article by Rabinowitch.

Finally, we come to the consideration of the unusual neurologic symptom-complex exhibited by this patient. Hypoglycemia may be accompanied by many neurologic and mental disturbances. Their enumeration here would be too long and tedious and the reader is referred to the excellent article on this subject by Wilder. A search of the literature also reveals the fact that transitory hemiplegias are not rare and that they may be due to many causes, especially angiospasm. However, to our knowledge the only case of hemiplegia on record due to hyperinsulinism is that reported by Ravid. The fact that the neurologic findings both in the case of Ravid and in our case were transitory and localized makes them difficult of explanation. Ravid has discussed this subject in its different aspects and has offered an explanation unsatisfactory, apparently, even to himself. It has been shown that insulin does have some direct effect upon the nervous system, and we also know that hypoglycemia is accompanied by certain circulatory changes. But why should the effect of these changes cause localized disturbances? At present we are not able to answer definitely, with the information available, concerning all of the factors involved. This case is presented merely for the purpose of drawing attention to the unusual neurologic complications which may be encountered in the treatment of diabetes.

SUMMARY

A case of diabetic coma is presented which, in the course of treatment, showed rare neurologic findings due to hyperinsulinism.

The mechanism of glucose metabolism is briefly reviewed.

The importance of afternoon blood sugar estimations is emphasized.

If at any time during the treatment of diabetes any unusual symptoms or signs develop, it is important to have a blood sugar estimation.

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MISTAKES IN DIAGNOSIS AND TREATMENT OF SYPHILIS*

BY AUSTIN W. CHEEVER, M.D.,† AND WILLIAM D. WHEELER, M.D.†

DIAGNOSTIC and therapeutic errors are at times unavoidable but there is no justification for avoidable mistakes. In the practice of syphilology lack of knowledge constitutes a grave public health problem and is responsible for the spread of a serious disease in the community and for its transmission to the generation to come.

Within the past three years there have come to the attention of the authors over a hundred such mistakes which clearly demonstrate the following points:

1. That the physicians who first saw these cases knew few of the rudimentary requirements for the diagnosis of primary syphilis. Unbelievable as it seems, many of these physicians had no knowledge whatsoever of the dark-field examination; that is, the use of the microscope to determine the presence of the *Treponema pallidum*.
2. They were not "syphilis conscious", seldom suspecting syphilis; they failed to recognize its manifestations in the late stages. They never resorted to the help of serologic examinations, such as the Wassermann, Kahn, or Hinton tests.
3. Their knowledge of the therapeutics of syphilis was tragically inadequate and obsolete.
4. They were totally unaware of the progress made in the diagnosis, treatment, and laboratory research in syphilology.

Since these errors fall naturally into two groups, diagnostic and therapeutic, the cases reported below are so classified.

DIAGNOSTIC ERRORS

CASE 1.

A white American, 32 years old, contracted a penile lesion. A thin crust formed on top of it after ten days of self-treatment. The family doctor was then consulted. The doctor removed the crust, applied a caustic agent and ruled out syphilis because the caustic produced no pain. He made no dark-field examination. The ulcer healed in five weeks by local medication. Shortly after, there appeared a generalized rash and the Wassermann blood test taken at this time was positive.

CASE 2.

A patient brought the following letter from his family doctor:

> "This patient has been treated by me for a penile sore for two months. I wonder if it might be syphilis. Please do a Wassermann test and report to me."

Examination showed a penile lesion nearly healed; the dark-field examination was positive for *Treponema pallidum*, and there was present a generalized maculopapular rash of secondary syphilis. Obviously, the doctor did not know that the correct procedure was not to wait two months but to search for the treponemata with the aid of the dark-field apparatus.

CASE 3.

A patient with acute gonorrhea developed a rash about five weeks after the onset. The Wassermann blood test at the onset of gonorrhea was negative, which satisfied the attending physician as to the absence of syphilis, and no more blood tests were taken. Examination at this time revealed a hard ring around the corona, much edema of the prepuce and a typical rash of secondary syphilis. The Wassermann blood test was strongly positive. Undoubtedly the patient contracted an intraurethral chancre. This doctor did not know that the blood may stay negative for two or more weeks in the primary stage of syphilis.

CASE 4.

A young man, aged 20 years, came to his doctor with a lip lesion of six weeks' duration and a macular rash of one week's duration on the trunk. There was a history of much kissing of a dancing partner with whom he was previously unacquainted. His physician ridiculed the idea of a chancre and reassured the patient with the statement that chancres occur only on the genitalia. The dark-field at this time was positive, as were the Kahn and Wassermann blood tests. A knowledge of the fact that extragenital chancres are fairly common and may occur on *any part of the body* would have prevented the development of a secondary phase and infection of other contacts.

CASE 5.

A married woman, 28 years old, had a generalized rash of secondary syphilis of three days' duration. She denied extramarital relations. Examination of her husband showed evidence of syphilis, confirmed by a positive Wassermann blood test and a history of a penile sore a few months before. The ulcer was healed with local medication in four weeks. His doctor assured him that it was not syphilis. He admitted extramarital relations both before and after the development of the sore. Prompt diagnosis by aid of the dark-field examinations would have prevented infection of his wife and of his extramarital contacts.

CASE 6.

A worker consulted the factory doctor about a penile sore. The physician prescribed a salve, explaining that failure of the salve to heal the sore in one month meant syphilis. At the end of the month the chancre was only partly healed and a rash appeared all over the body. The Kahn, Wassermann, and Hinton blood tests were positive at this time. The quaint means of diagnosis employed by the factory doctor proved prophetic, but the diagnosis should have been made by means of the dark-field examination at the first visit of the patient, and these examinations repeated for several days in succession until treponemata were found or syphilis definitely excluded.

CASE 7.

A baby one month old was seen in the nose and throat department of another hospital. The baby's

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ailment, as described by the mother, consisted of constant sniffling, whining, and hard breathing. After three weeks of unsuccessful treatment a tonsillectomy was performed. This was followed by a persistent hemopurulent nasal discharge. Finally a pediatrician proved the case to be congenital syphilis, pointing out that a history of sniffling, whining and panting in an infant should immediately make one suspect congenital syphilis, these being the cardinal symptoms of the ailment. He also demonstrated a maculopapular rash on the palms and soles of the child, another important diagnostic point, the significance of which was unknown to the physicians who preceded the consultant. Examination of the mother revealed her to be syphilitic. The Wassermann blood tests of both mother and child were positive.

It would be impossible and unnecessary to describe here in detail all the cases which came to our knowledge; it will be sufficient to mention the following outstanding errors:

Numerous cases of interstitial keratitis in congenital syphilitics treated by prescribing eyeglasses; extragenital chancres on fingers, lips, eyelids, thighs, and other places, which were not recognized for their true meaning; an endless list dealing with failures to recognize syphilis of the central nervous system: patients being treated for anything but syphilis; syphilitic periostitis in children, diagnosed as growing pains; perianal condylomata, diagnosed as hemorrhoids and removed surgically; tonsillectomies done while tonsillar chancres existed; unrecognized syphilitic heart involvements, and others. The list is very long and appalling.

THERAPEUTIC ERRORS

On October 8, 1928, a meeting of syphilologists, arranged by the League of Nations, took place in Geneva. In their final report these men stressed the fact that "in the fight against syphilis the results obtained have not been such as the universally recognized progress of syphilis therapy would give reason to expect". They apparently explained this fact by their statement that "new discoveries in diagnosis and therapy of syphilis are not applied everywhere in the right way and with desirable promptness". Apparently these new discoveries are unknown to some of the medical profession. The following cases illustrate several instances of therapeutic errors:

CASE 1.

A man with a penile sore was treated by a surgeon for syphilis after the dark-field examination proved positive. The treatment was not so intensive as recommended by modern procedure. He was given one weekly intravenous injection of neo-salvarsan for six weeks, followed by one weekly injection of mercury salicylate intramuscularly for nine weeks. At the end of the above courses the patient was told that he needed no more treatment because his blood was negative, but that he should come for a blood test in a few months. When papules and moist lesions appeared on the scrotum about four weeks later they were diagnosed as herpes by the surgeon. Soon after, a rash appeared on the trunk while late secondary manifestations of syphilis developed around the corona, on the lips, and in the mouth. It required a positive Wassermann blood test and the opinion of two dermatologists to convince the surgeon that his treatment had not been adequate and that the patient was suffering from secondary syphilis.

Several important errors stand out in this case. First, the surgeon did not know that in both primary and secondary syphilis intensive treatment is indicated, until lesions and symptoms disappear. Such intensive treatment usually consists of two or three weekly intravenous injections of some arsenical agent. Secondly, he was not aware that one negative blood test does not mean a cure. He did not know that it takes from two to five years to effect a probable cure; that it is necessary to examine the spinal fluid for neurosyphilis and that in most cases it is necessary to have the patient under lifetime observation.

CASE 2.

A woman receiving treatment for primary syphilis reported chills and nausea a few minutes after the second intravenous treatment, and the dose of arsphenamine was diminished for the next two visits. After the fourth injection a rash appeared on the body, a small ulcer in the left tonsillar fossa, and a large, hard, non-tender mass near the angle of the lower jaw, all of which were definite signs of secondary syphilis. The condition was diagnosed as arsenical poisoning, arsphenamine treatment was stopped, and intramuscular bismuth medication was substituted, but the patient continued to grow worse. Finally, when a correct interpretation was made, and large doses of arsphenamine were given, all the signs and symptoms of secondary syphilis subsided.

CASE 3.

Another grave danger is failure to recognize and interpret drug reactions. A woman treated regularly for syphilis for three years complained of an itching sensation on her arms after a certain intravenous injection. Her doctor attributed the itch to "nerves or diet". The arsenicals were continued and the itching grew worse and more general. After the seventh treatment a profuse exfoliation began all over the body, and a dermatologist diagnosed the case as *arsenical* dermatitis exfoliativa. This condition sometimes terminates fatally. The itching was a danger signal of arsenical poisoning and a warning to stop arsenical treatment. In some cases it is not sufficient to stop the treatment but it becomes necessary to unload the metal from the patient's system by administering sodium thiosulphate intravenously three times a week or more often until the patient is cured of the dermatosis.

CASE 4.

A surgeon offered to treat his brother for advanced syphilitic aortitis, the diagnosis having been made by an internist. He gave 0.9 Gm. neoarsphenamine, followed three days later by another 0.9 Gm., and three days later by a third injection of the same dosage. The patient did not survive to receive the fourth treatment. This patient should have been given a much milder form of treatment, such as oral administration of mercury for several weeks previous to intravenous medication.

CASE 5.

Not only is knowledge of proper dosage necessary, but also skill in technic if one wishes to administer treatment safely. While a doctor began administering a dose of arsphenamine, the patient complained of pain and burning at the site of injection. This could mean one thing only: The tip of the needle was outside of the vein and the arsphenamine solution was saturating the tissues and not entering the blood stream. Treatment should have been stopped at once, the needle withdrawn, and then reinserted into the vein. The doctor ignored the warning and

administered the entire dose 0.4 Gm. arsphenamine *extra*venously. This was followed in a few hours by marked edema, redness, and later by a deep, extensive slough. The ulcer was healed by ultraviolet radiation in about three months while intensive intravenous medication was continued in the other arm.

Many more such cases came to our attention. They seemed to show that an alarming number of physicians still labor under the obsolete idea that all there is to the diagnosis of syphilis is taking a blood test and all there is to the treatment is giving injections until they get a negative blood test. The errors keep piling up, as disclosed by the records of many syphilologists, hospitals, and boards of health.

CONCLUSIONS

The cases presented above are not cited in the spirit of criticism, but for the purpose of awakening the medical profession to its responsibility. An intensive propaganda among the practicing physicians is essential to acquaint them better with the methods of modern syphilology. A short list, headed "Lest We Forget" might well be printed for distribution to every physician, to be kept permanently on his desk, and to read as follows:

1. Consider every genital ulcer as syphilitic unless definitely ruled out by repeated dark-field examinations.
2. Remember that extragenital chancres are not uncommon and may be located anywhere on the body.
3. Bear in mind that a chancre in a woman may be hidden within the vagina. A painstaking, thorough search should be made in all cases.
4. Have routine laboratory blood tests, such as the Wassermann and Hinton, made on the blood of all your patients, and don't forget that one negative test does not rule out syphilis.
5. Have the blood of every pregnant woman examined for syphilis early in pregnancy. A positive blood test would indicate immediate treatment for the expectant mother and incidentally for the fetus.
6. The time to discover a congenital syphilitic and begin treatment is before the syphilitic is born; that is, treating the syphilitic mother early in pregnancy, all through pregnancy, and then continuing the treatment of the child from its birth for a long number of years.
7. Treatment in all cases of syphilis should be prolonged, intensive when necessary, and always in keeping with modern procedure and progress. One negative blood test during treatment does not mean a cure. About two to five years is necessary before a probable cure can be effected. In most cases lifetime observation of the patient is advisable.
8. Examination of spinal fluid is essential in every case of syphilis, and is often the only means of detecting incipient neurosyphilis.
9. Always suspect syphilis. In any of its stages it may simulate other diseases.
10. Whenever in doubt concerning the diagnosis of syphilis consult a syphilologist.

It is obvious that teachers and students of syphilology, and other interested agencies, such as medical schools, public health institutions, hospitals and others, should unite for an intensive propaganda to reach every physician, to the end that advantage may be taken of the progress of syphilology.

PELLAGRA PREVENTIVE VALUE OF CERTAIN CANNED VEGETABLES

The United States Public Health Service has recently completed a study of the pellagra preventive potency of canned spinach, canned turnip greens, mature onions and canned green beans. These studies are of value, as they indicate the efficacy of these vegetables in the prevention of pellagra.

Canned spinach supplies the pellagra-preventive vitamin, but cannot be regarded as especially rich in it. It is, however, considered an important contributory source of this factor. Canned turnip greens supply the pellagra-preventive vitamin and, at least in liberal quantity, adequately supplement an otherwise pellagra-producing diet. This substance meets many of the requirements of a practical and effective dietary supplement in the pellagrous sections. The mature onion is a very poor source of the pellagra-preventive vitamin. Canned green beans are, relatively, a poor source of the pellagra-preventive vitamin.

A GENEROUS BEQUEST TO THE BOSTON CITY HOSPITAL

By the will of Charles H. Tyler of Beverly, Massachusetts, The Boston City Hospital will receive one million dollars, half of this sum to provide a surgical research laboratory and equipment and half to be placed in trust, the income of which is to provide for salaries for the director and his assistants. If necessary this trust fund may be drawn upon for equipment.

The director is to be appointed by the trustees of the hospital after consultation with the Harvard Corporation or that of Tufts College or both.

The laboratory will be named after Dr. George H. Sears who has given years of service to the Boston City Hospital as a physician and trustee.

This is an illustration of the function of physicians in influencing the disposition of funds by wills. This bequest will to a large degree add to the beneficent functions of the City Hospital.

It may be that it will be a motivating example which will turn attention to the Faulkner and the Deaconess Hospitals both of which have contributed greatly to the needs of patients.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 17521

RECURRENT UNILATERAL PLEURAL EFFUSION AND ASCITES

MEDICAL AND SURGICAL DEPARTMENTS

PRESENTATION OF CASE

DR. OTTO C. YENS*: This is the case of a native born travelling salesman aged forty-three who had been in the hospital three times. His final admission was in May, six and a half years after his first admission. His chief complaints were of dyspnea on exertion, edema of the legs and ascites of seven years' duration.

The present illness began nine years before his third admission with low substernal distress, especially when his stomach was empty. This lasted two years, until seven years before his final admission. Then he had hematemeses on two successive days. The blood was dark red and clotted, the amount not known. The patient lost consciousness each time. Edema of the legs, marked ascites and dyspnea on exertion followed.

First admission. An abdominal paracentesis was done and 9½ pints of fluid removed. After it the liver was found to be enlarged to 8 centimeters below the costal margin. The heart was much enlarged, with a systolic and a slight diastolic murmur in the second and third interspaces to the left of midsternum. A Wassermann test was strongly positive. The pupils were unequal. The left pupil was slightly irregular and did not react to light. A lumbar puncture was negative. The blood pressure at that time was 160/110. There was very marked secondary anemia.

A gastro-intestinal series done at that time was inconclusive. A chest film showed the heart greatly enlarged, especially in the region of the left ventricle. Otherwise x-ray examination was negative.

History of interval. After discharge he spent the winter in Florida and did fairly well. He was tapped three or four times and had 60 injections into his arm of what may have been iron. He also took potassium iodide. Five years before his third admission he began to have weekly injections into his buttocks of a fluid which he said produced diuresis. He continued to lead a sedentary life and was fairly comfortable with a varying amount of edema and slight ascites. Between the time of his discharge and three years before death he had occasional nocturnal dyspnea, but he was on the whole fairly well, with some weight loss. One year before his third entry he had extraction of two teeth and developed severe osteomyelitis and sloughing of almost the whole right maxilla. He went to the Eye and Ear Infirmary. An abdominal paracentesis was done there, and he was transferred to the West Medical service.

Second admission, five and a half years after his first admission.

He showed on physical examination at that time a very severe osteomyelitis of the right side of the face. The chest showed dullness below the level of the scapula posteriorly and anteriorly with signs of compression of the lung above. The left lung was normal. The abdomen showed a large amount of fluid. The liver was 10 centimeters below the costal margin. There was marked edema of the legs and sacrum. The heart was much the same as at the previous admission, with definitely increased supracardiac dullness. There were numerous dilated veins of the upper chest. The blood pressure on admission was 132/92.

Abdominal paracenteses at that time showed 6 liters of milky fluid unchanged by shaking with ether, and characteristically showing crystals microscopically. The specific gravity was 1.010. There were 84 lymphocytes, 3 polynuclears. Hinton and guinea pig tests were negative. A culture was sterile. A liver function test at that time was normal.

X-rays of the chest showed definite evidence of partial collapse of the right lower lobe and a question of aneurysm of the aorta. There was pleural effusion on the right side, hazy dullness of the lower three quarters of the right lung and a question of displacement of the heart to the right.

The urine showed a slight trace to a trace of albumin, with white blood cells and casts but no red cells. The renal function was markedly reduced. The non-protein nitrogen varied between 60 and 40. A chest tap yielded no fluid.

The patient improved in the ward and was discharged in three weeks and a half.

History of interval. He was followed in the Outpatient Department. In general he remained in about the same condition. He had to be tapped every two or three weeks and always had about 6 quarts of milky colored fluid. He had non-productive dyspneic cough for a long time after his discharge, but none recent to his third admission. His appetite remained good. He took digitalis and potassium iodide. For a month before readmission he had had slight pain in his left shoulder on motion. Seven months before his final entry anteroposterior and lateral x-rays of the chest showed a rounded

*Recently senior interne on the West Medical service.

mass at the right lung root, also probable collapse of the right lower lobe with displacement of the heart to the right. The question was raised at that time as to whether there was malignancy of the lung, and also a question of lues of the right descending bronchus. He was advised to enter the hospital, as it was felt that something might be done for him.

Third admission, a year after his second admission.

He now gave a history of a questionable chancre twenty-four years ago, with no secondary manifestations. He had had pneumonia twice, once fifteen years previously, and influenza in 1918.

The family history was negative. His first wife had died, leaving three children living and well. She had had two miscarriages. His second wife had had no pregnancies.

Physical examination showed a well-developed, thin, pale man lying propped up in bed. His lips were brick red, his fingers cyanotic. The right chest was smaller than the left. There was fullness of the right supraclavicular fossa and pulsation in the suprasternal notch. There were numerous dilated veins across the upper left chest anteriorly and over the left shoulder, where there was slight pulsation. There was increased supracardiac dullness. The heart was considerably enlarged. The left border of dullness was about 11 centimeters from midsternum. The sounds were good. The rate was 60, but with definite pulsus alternans. There was a loud rough midsystolic murmur transmitted to the apex and less markedly to the third space to the left of the arterial and aortic areas. There was gallop rhythm. The lungs showed dullness to flatness in the right chest anteriorly and posteriorly below the apex, the only area of resonance being high in the axilla and at the clavicle or above it. The breath sounds were bronchial and of diminished intensity as the dullness increased. There were many crepitant râles over the whole right chest. The left chest showed dullness below the scapula behind and in the axilla. The gastric tympany was increased in this area. The breath sounds were bronchial anteriorly and posteriorly over the upper left chest with increased voice sounds. There were many râles over the entire chest. Tactile fremitus was absent in the right chest. There was edema of the entire body below the nipples. The blood pressure was 133/72.

The urine and stool were negative. The white blood cell count was normal. Hinton and Wassermann tests were moderately positive. The non-protein nitrogen was 48 milligrams. A liver function test showed 10 per cent. retention.

An electrocardiogram showed left bundle branch block, low voltage.

In the ward the patient had several abdominal paracenteses. The fluid always showed opacity due to pseudomucin, suggestive of hepatic cirrhosis of long standing.

Dr. Churchill advised exploratory laparotomy, with decision for omentopexy to be based on the findings. A right upper quadrant incision was made under local anesthesia and omentopexy done to establish collateral circulation. A liver biopsy was also done. The operation was very well borne, but that night the patient suddenly died.

Dr. Aubrey O. Hampton: At the first admission we had some films of the chest which were negative except for enlargement of the heart. He also had a gastro-intestinal series at that time. The conclusions were: "Not characteristic of either carcinoma or gastric lues and might be due to adhesions about this portion of the stomach, that is, the antrum, but may be of no pathologic significance."

The first film that was taken at the second admission was interpreted as collapse of the right lung, and fluid. It is a fairly typical picture of collapse in that the heart is displaced to the right and is obscured by an area of homogeneous hazy dullness which obliterates the lower three quarters of the right lung field. You see thickening of the pleura along the axillary line, also a queer area of density at the lung root which was not described. Here is a portable film taken later showing practically no change. We also described increased supracardiac dullness, and we thought that he had an enlarged heart and that the increase in the supracardiac shadow might be due to dilated aorta.

Dr. Maurice Fremont-Smith: Would not collapse do that?

Dr. Hampton: Collapse would do all of it except for that little dense line, which would indicate pleural involvement. If we see that we have at least a suspicion that there is pleural involvement.

A few days later we had another film with a little more exposure. It showed very little change except that perhaps at the left base there is some dullness not present before. One would assume that he had something in his pleural cavity at that time.

The films taken at his third admission show pneumothorax, a fluid level and a partially, irregularly collapsed lung. The lung is probably adherent at one point and the upper lobe is not collapsed. The round shadow again is present, though it is not nearly so dense as it seemed in the earlier film. It is almost transparent in one region.

The lateral view shows that that round area of dullness is not in the ascending aorta or in the arch of the aorta but below it in the inferior part of the lung root. We had no interpretation of what that mass represented. At the last examination I think his left lung had cleared up a bit.

In the last film we have, he still has dullness at the left base. We thought all along that he had definite evidence of collapsed lung, fluid,

that queer mass, increased supracardiac dullness and enlargement of the heart.

Clinical Discussion

Dr. Gerald Blake: Previous to this man's first admission he had been under treatment for hypertension. Hypertension in a man of thirty-six in the absence of pathology in the kidneys or any other obvious cause is probably either essential hypertension or due to lues through changes in the vessels. This man had lues, but we had no knowledge of what his condition was before we got our first positive Wassermann. At entrance he showed enough in the widening of the arch of the aorta, in the enlargement of the heart, the double murmur present in the heart, to make a diagnosis of luetic aortitis and luetic heart disease. Because of the fact that there was no evidence of congestive failure elsewhere, the large liver and ascites were also thought to be due to luetic involvement of the liver.

He did pretty well between the first discharge and the second admission on treatment calculated to be good for cirrhosis of the liver from whatever cause, and particularly good for luetic changes in the liver. He got at weekly intervals through a period of five or six years injections apparently containing mercury, because he stated that he always had profuse diuresis afterwards.

His condition at the second admission was somewhat worse so far as his heart, his aorta and his liver were concerned, but those symptoms and signs were overshadowed by his prostration from the infection, osteomyelitis of the upper jaw. He appeared to be in a hopeless condition at admission at that time. He was treated symptomatically so far as his heart and liver were concerned and treatment of the osteomyelitis of the jaw was carried on, but for a week without very much enthusiasm. He rather surprised us by improving enough to be able to be discharged from the hospital in fairly comfortable condition.

At the time of his second admission there was an appearance of a bulge at the beginning of the aorta. It was not possible to say whether this pulsated or not, but the question of aneurysm came up at that time.

At his third admission his condition was an aggravation of what it was in the second admission, with osteomyelitis out of the picture. The striking things then were increase in the demonstrable supracardiac dullness, fluid in the right chest, moisture in the left chest and striking dilatation of the superficial veins of the upper thorax. There was some degree of infection in the abdominal wall from repeated tappings outside. While he was tapped a few times during that admission, the fluid reaccumulated so rapidly and created such discomfort that we asked Dr. Churchill to see him with a view to operation to increase the collateral circulation. In regard to the chest condition, there was evidence of increased pressure in the mediastinum. Aneurysm and mediastinitis from his lues and adherent pericardium were considered as possibilities, but of these three the most likely seemed to be aneurysm, because the bulge at the beginning of the arch was more prominent than it had been before. In the opinion of the Cardiac Clinic the probable diagnosis was intrapericardial aneurysm of the first part of the arch.

In spite of this chest condition we thought it wise to try to see if the ascites could be better controlled following operation. We sent him to the Surgical service with a diagnosis of luetic aortitis, luetic heart disease, lues of the liver, question of mediastinitis and question of aneurysm at the beginning of the arch.

Dr. Howard B. Sprague: Both Dr. White and I saw this patient and we were not able to make a definite diagnosis. I guessed at aneurysm as the first diagnosis. Then after writing this note I took the man down and Dr. White and I fluoroseoped him in the laboratory. You heard Dr. Hampton give the x-ray findings. We were not able to find any definite saccular aneurysm. There was no evidence of calcification in the pericardium, but there was cardiac enlargement. In a patient with lues and liver enlargement with ascites, suggesting the inferior mediastinal syndrome, and with evidence of superior mediastinal obstruction at the last admission, it seemed to us that the most likely diagnosis was aneurysm of the aorta with pressure on the great veins. An electrocardiogram gave evidence of left bundle branch block. We had proof, then, of myocardial difficulty, but could not say from the findings that we were dealing with aneurysm or mediastinitis with any definiteness, and we were not at all sure what this patient would show at necropsy.

Dr. Frederick T. Lord: I did not hear the first part of the report, but I am interested in the condition on the right side of the chest, especially the explanation of the apparent lung collapse in this region. There are two causes of atelectasis, compression from without and plugging of the bronchi. Though the x-ray is of great importance in establishing the presence of atelectasis, it is not to be expected that it will often tell whether the bronchus leading to the affected region is open or closed. Such radio-opaque substances as metal, bone or ivory may be detected in the bronchus, but such intrabronchial causes of bronchostenosis as a non-opaque foreign body, bronchial tumor, fibrinous exudate, granulation tissue of a cicatrix are not determinable by x-ray and in long-standing cases collapse of the lung may persist after relief of the bronchial occlusion. It is fortunate that evidence obtained on physical examination does permit a decision regarding the presence or absence of bronchostenosis, and I should like to emphasize the value of physical signs in this

matter, as it is one of the few bronchopulmonary conditions in which they exceed in value the results of x-ray examination. It would in consequence be of interest to know more in detail regarding the physical signs. If the atelectasis is due to bronchostenosis there should be dullness, diminished or absent breathing, voice, whisper and tactile fremitus. If it is due to pressure of fluid from without and the bronchus is open, the signs should be quite different, i.e., dullness, bronchial breathing, diminished voice, egophony and diminished tactile fremitus. Could we know more about the signs on this side of the chest?

DR. EDWARD D. CHURCHILL: Here is your note: "Anteriorly in the right chest relative resonance at the apex. The base anteriorly was dull, with diminished bronchial breathing, voice and whisper negative, tactile fremitus diminished, numerous medium and consonating râles. Posteriorly at both bases extending high on the right was dullness with diminished bronchial breathing, tactile fremitus present, numerous râles, no egophony."

DR. LORD: The signs at the right base, back and front, are consistent with atelectasis from fluid and suggest that the bronchus leading to the affected region is open.

DR. CHURCHILL: After hearing the history in this case abstracted by Dr. Yens I am amazed that we undertook to treat this man surgically. But in reality the patient did not seem to be in so desperate a situation as the picture would indicate. He had been studied by Dr. Short in the Outpatient Department for a long time, but the nature of his difficulty was very obscure. The ascitic fluid was very interesting because it was milky in appearance. That immediately raised the question as to whether it was chylous ascites, and the fluid was examined very carefully with this in view. There were no fat droplets or fatty acids. The cloudiness was due to pseudomucin. This finding was taken to indicate hepatic cirrhosis. We were still in the dark as to whether the cirrhosis was primary or secondary to cardiac failure.

It was thought the simplest procedure in an attempt both to establish a diagnosis and possibly to give the man some relief would be abdominal exploration with the Talma fixation of the omentum.

When the abdomen was opened the liver was found to be enlarged and the surface marked with a thin white coating typical of prolonged ascites. There was no evidence of malignant disease or of cause for the ascites other than the liver condition. I examined the diaphragmatic aspect of the pericardium to see if information could be obtained regarding possible pericardial adhesions. The heart was beating forcefully and pulsations were transmitted freely through what was apparently a thin diaphragmatic pericardium. A small wedge-shaped piece was taken from the liver for biopsy. The operation was performed under local anesthesia with perfect coöperation of the patient. The following day he died suddenly without further signs or symptoms of diagnostic significance.

DR. FREMONT-SMITH: Assuming that his hematemesis was due to liver damage causing dilated esophageal veins, isn't it fair to say that the process is not luetic but is rather more apt to be a straight cirrhosis? Isn't it true that the lesion in a luetic liver is less apt to give venous compression? Are not the lesions more discrete?

DR. TRACY B. MALLORY: Yes, I think that is true of the luetic livers that we have had here. None of our typical cases of hepar lobatum have shown varices or hematemesis, but we have not a great many cases from which to draw conclusions.

DR. CHESTER M. JONES: Had this patient had enough suppuration in the past to produce amyloid changes in the liver?

DR. MALLORY: Hardly. He had had only that jaw lesion, and that cleared up fairly quickly, didn't it?

DR. YENS: Yes, in six or eight weeks.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Cirrhosis of the liver.
Luetic heart disease.

ANATOMIC DIAGNOSES

1. *Primary diseases.*

Chronic pleuritis, pericarditis, peritonitis.
Arteriosclerosis and coronary sclerosis.

2. *Secondary or terminal lesions.*

Hypertrophy of the heart.
Luetic aortitis.
Compression atelectasis of the right lung.
Chronic vascular nephritis.

3. *Historical landmarks.*

Operative wound, omentopexy.

PATHOLOGIC DISCUSSION

DR. MALLORY: This is a case in which it certainly seems impossible to lump all the symptoms under one diagnosis. Clinically there was a great deal to suggest syphilis, yet it was hard to explain all the symptoms under the classification of syphilis. That becomes still more evident when we come to the autopsy findings.

Perhaps the thing that impressed us most at autopsy was the right pleural cavity, where they had constantly found fluid over a period of two years or more. Both the visceral and parietal pleurae, which were 2 or 3 millimeters thick, showed dense fibrous thickening. There was still a large amount of fluid in spite of tapping, well over a liter. The lung was completely collapsed. The other pleural cavity also showed fluid and

some evidence of old fibrous pleuritis in the form of adhesions between the lung and the parietal pleura, but no such marked thickening of the pleura as we found on the right.

In the pericardium we again found adhesions, both old fibrous and also some fresh fibrinous.

In the abdomen the capsule of the liver and of the spleen were both very much thickened with dense fibrous tissue. There was no true cirrhosis. The tissue immediately beneath the capsule showed fibrous radiating bands, but as we got deeper into the liver we found nothing but chronic passive congestion.

The other major finding at autopsy was a hypertrophied heart in which a large proportion of the hypertrophy was on the right side. The left side was only slightly hypertrophied and showed a small area of infarction. One coronary was occluded by an organized thrombus so vascular as almost to suggest Buerger's disease. The pulmonary artery showed definite dilatation and the middle of the three main branches of the right pulmonary artery was completely occluded by a thrombus which was firmly adherent; it must have been present for some time. The aorta showed marked atheroma, some scarring which looked luetic, numerous rather small areas of dilatation, no definite aneurysm at all, but a number of small beginning pockets which suggested that perhaps aneurysms were developing.

The stomach showed several areas of rather slight polypoid hyperplasia of the mucosa. I think it would be fair to classify them as benign polyps. The esophagus showed slight dilatation of the veins but no varices which were at all striking.

The more or less final finding was a pair of kidneys weighing only 175 grams, very adherent to the capsule, with a granular red surface. When stripped they showed quite a typical vascular nephritis, rather severe.

How to connect this variety of things with one another is an amusing problem. One of the things one is forced to think of immediately is the possibility of multiple serositis. The evidence as to that is not conclusive. We have one pleural cavity, and the lesions of the liver and spleen are very suggestive. What we found in the other pleural cavity is rather questionable. The cardiac infarct would not depend upon serositis. The adhesions found in the pericardium could be accounted for by multiple serositis or by the infarction. On the other hand I do not see how syphilis could possibly produce those conditions. So far as I know there has never been any relation between syphilis and multiple serositis. Serositis is much more apt to be associated with rheumatic infection. There is no evidence of old rheumatic or luetic lesions on any of the valves in this case. He did however have acute vegetations, indistinguishable from rheumatic ones, on the aortic and pulmonary valves. This is most unusual, because almost invariably the pulmonary is the last valve to be affected. Both the mitral and tricuspid valves were negative. We know this man had hypertension in the major arterial circuit, probably in the pulmonary circuit as well. That might explain the localization on the aortic and pulmonary valves. At least it is an interesting conjecture.

There is one other possibility. There seems to be a definite relationship between multiple serositis and periarteritis nodosa, as Ophüls has pointed out. That would tie up the heart, the serous cavities and the kidneys. On the other hand we can find in this case no lesions in the vessels which definitely suggest this disease.

DR. HAMPTON: Were the main bronchi on the right normal?

DR. MALLORY: Yes.

DR. LORD: What did culture from the pleural fluid show?

DR. MALLORY: I do not believe we cultured it, Dr. Lord. There was a relatively clear fluid there which we probably thought was not infectious in origin.

DR. LORD: In respect to that, a small proportion of patients with rheumatic fever develop pleuritis with serofibrinous effusion, with clear or slightly cloudy straw-colored fluid, excess of lymphocytes or polynuclear cells, endothelial cells in smaller proportion, and sterile on culture.

DR. MALLORY: Yes.

A section from the pulmonary artery showed an area of interruption of the media by a vascular scar. Such a lesion in the aorta we should diagnose with little hesitation as luetic. We hardly know enough about the pulmonary artery to speak with much certainty. That is your opinion, isn't it, Dr. Brenner?

DR. OSCAR BRENNER: I think so.

DR. CHURCHILL: Obviously it is absolutely impossible to assign any one factor here as the cause of this patient's condition. However, I want to call attention to the adhesions in the right chest involving the right side of the heart. At autopsy there was a direct line of scar tissue between the right auricle and the lateral thoracic wall. I feel sure that a great many of the pathologic findings can be directly attributed to this type of adhesive pericarditis. There is one type at least of polyserositis, so-called, which is not due to "rheumatic" infection of the serous membranes. In Pick's disease the changes in the liver and spleen are entirely secondary to the mediastinal or pericardial adhesions, with resulting passive congestion. We ordinarily think of Pick's syndrome as originating from a completely encased heart, but as time goes on we are accumulating evidence about the effect of localized pericardial adhesions. This heart as I remember showed localized adhesions only in the region of the right auriculoventricular group.

DR. LORD: Were Aschoff bodies found in any of the lesions?

DR. MALLORY: No. All the lesions we found in the blood vessels I should say were consistent with a combination of ordinary arteriosclerosis and lues. On the other hand the possibility of some other type of endarteritis cannot be ruled out.

DR. HAMPTON: Are we to assume his lung was collapsed by fluid and retained in position by thickened pleura? How are we to explain that collapsed lung?

DR. MALLORY: I do not know. He had enough fluid there perhaps to cause it.

DR. HAMPTON: But the heart all the time except at the first admission was over towards that side definitely.

DR. MALLORY: Thrombosis of the artery may have played a rôle in the end.

CASE 17522

EPIGASTRIC PAIN FOR TWO YEARS IN A MAN OF SIXTY-TWO

MEDICAL AND SURGICAL DEPARTMENTS

PRESENTATION OF CASE

DR. ALFRED O. LUDWIG*: *First admission.* This patient was a sixty year old single painter who entered the hospital for the first time with epigastric pain as the chief complaint.

He was seen in the Outpatient Department twenty-four years before he entered the wards with discharging sinuses of the neck and left axilla diagnosed as tuberculosis of the glands, and again fourteen years before entry with a discharging sinus of the left arm.

The present illness at the first entry was epigastric pain for two years, usually coming on one half to three quarters of an hour after meals, burning in character and definitely relieved by food and soda. He had had periods when he was symptom free. For about a year before entry he had been passing blood in stools. He thought he had had black stools on several occasions. Three weeks before entry the pain became much more severe and frequent. It wakened him at night. The relief by soda was less marked than before. One week before entry he began to vomit yellow material.

The past history except for the Outpatient entry is of no significance.

Physical examination showed a moderately well developed, poorly nourished old man. The right pupil was slightly irregular. The teeth were carious. There were numerous deep contracted scars over the skin of the upper chest, back and front, and in the neck and both supraclavicular regions. The lungs showed some increased dullness at both apices. On admission the abdomen showed exquisite tenderness in the midepigastric region.

He was admitted on the Surgical service first with a question of penetrating duodenal ulcer. He spent a week in the ward on a first stage gastric régime but without powders, with no improvement. X-ray showed a pyloric ulcer. A barium enema and an x-ray examination of the chest were negative. After being in the Surgical ward for a week he was transferred to the Medical service. After about a week of strict régime with powders he improved somewhat and finally became symptom free. Finally, about three weeks after entry, he was discharged without symptoms with a diagnosis of pyloric ulcer.

History of interval. He went home and did not keep to his diet. He ate lamb, chewed tobacco very assiduously and had pain and vomited several times. He had no bloody or tarry stools. There was a constant dull ache in the midepigastrium. He was seen in the Gastro-Intestinal Clinic by Dr. Chester Jones, who felt that he should have surgery done because of the persistence of the pain.

Second admission. He reëntered on the Medical service five days after his discharge.

Another x-ray did not show the fleck at the pyloric valve which had been demonstrated before. He was put on a strict Sippy régime and transferred to the Surgical service after two days in the Medical ward.

A posterior gastro-enterostomy was done. No satisfactory evidence of ulcer was found. The posterior wall of the stomach was adherent to the pancreas.

The next day it was noted that the patient was in excellent condition in the morning. Suddenly at 12:30 the blood pressure for no apparent reason fell to 65 systolic. The pulse was 140. He looked well and felt well. There was no discomfort in the heart, lungs or abdomen. The blood pressure was unchanged by shock position. A Medical consultant suggested caffein sodium benzoate 30 grams, which sent the blood pressure to 80. A second dose sent it to 100, where it stayed. The white blood cell count, red cell count and hemoglobin were normal at that time. The lungs, abdomen and heart showed nothing on physical examination. The surgeons felt that it was a case of circulatory collapse.

On the following day Dr. Jones noted, "This patient has signs of a partial collapse of the left lower lobe. This would explain his chart." Dr. Jones felt that there was no evidence of peritonitis, although he could hear no peristalsis. The temperature and pulse shot up on the first day after operation. The patient was given a constant intravenous infusion, but in spite of that continued to sink very rapidly. His hands and arms became markedly edematous, so the constant intravenous was stopped after one day.

*Junior interne on the East Medical service.

The chest showed râles. Atropine helped a little. On the fourth day after operation in spite of supportive medication he went downhill and died.

Clinical Discussion

Dr. Chester M. Jones: When we took this patient over from the Surgical service the first time the question was whether we could avoid operation in a man who was obviously not too good a risk. After a week's failure of medical treatment he was put back on a full Sippy régime and was absolutely symptom free for a reasonable length of time before discharge. I saw him in the Gastro-Intestinal Clinic four days later. He had not been following the régime; in fact it was almost impossible to do so because his home had been broken up and he had been eating wherever he could. He had no place to go. He wanted to go to Tewksbury for care. We felt that because home medical treatment had failed it would be better to operate on him and give him a chance to become symptom free and to go back to work. We thought it would be wiser for him to wait a matter of a few days on the Medical side.

I was interested in the fact that the second x-ray did not show the fleck at the pylorus seen previously, which not only suggested ulcer but seemed in the region of the pylorus. Because of the difficulty in telling on which side of the pyloric valve the lesion was, we felt that quite possibly there might be carcinoma.

Two days after operation he had what apparently was typical collapse so far as the chart and the signs were concerned, but subsequently he certainly had bronchopneumonia.

Dr. Leland S. McKittrick: I saw him when he came to the Emergency Ward. He presented an interesting picture at that time because of certain discrepancies between the physical findings and the admission diagnosis of perforated ulcer.

On superficial examination he had what was apparently a rigid, tender abdomen. Dr. Adams, who saw him with me, thought that there was something a little queer about it because of the absence of tenderness in the flanks. It was then noted that whenever one of us talked to the patient his abdomen relaxed and all of the tenderness disappeared except at one small localized area in the region of the duodenum. Because of this the diagnosis was changed from perforated ulcer to penetrating ulcer, and he was admitted to the hospital for further study.

X-rays taken a few days later suggested neoplasm. It was decided to follow his response on hospital dietary treatment before deciding for or against surgery.

The report that was read here states that no definite evidence of ulcer was found at operation. That is not quite the proper interpretation of the findings. He did have evidence of a duodenal ulcer. He did not have the usual acute inflammatory reaction that is apt to surround a posterior wall perforating ulcer.

From a postoperative point of view again the argument is interesting. They called me up and told me about the sudden collapse he had had, the blood pressure having fallen to 60 millimeters or below, with widespread abdominal tenderness, the same sort of condition he had when he came into the Emergency Ward, but again with no tenderness in either of the flanks such as we are bound to get if we have widespread peritonitis. That was approximately forty-eight hours after operation. The most probable surgical complication which would give him such widespread tenderness and complete collapse would be an acute perforation with flooding of the abdomen with a quantity of infected material. It was again very obvious from the absence of tenderness in either gutter that he did not have that particular complication. We all felt reasonably assured that whatever complication it was, it was not perforation.

The next condition which we considered was massive hemorrhage either from the ulcer or the suture line. Coming as it did forty-eight hours after operation, secondary hemorrhage from the line of suture seemed very unlikely. The very sudden collapse, the absence of vomiting of blood and of the pallor and restlessness that accompany hemorrhage made us fairly certain that bleeding from the ulcer might be excluded. It was my feeling that he most probably had had a pulmonary embolus, even though the findings were not classical for this.

Dr. Donald S. King: This case was discouraging in regard to what we are trying to do for the prevention of postoperative pneumonia. He came back with his chest so full of mucus that we had an eye on him from the first. He had adequate carbon dioxide treatment. We are trying now to give it for longer periods and more frequently. He had altogether twenty-one treatments in the three days and a half that he lived, so he certainly got enough carbon dioxide. In spite of that he went on to develop pneumonia rather than collapse. The day of death there were signs of hidden consolidation on the right side and some signs also of frank consolidation on the left. It was the type of operation of which we have always been suspicious in these postoperative cases. Here was a man of sixty who had a gastric condition. We are still running 40 per cent of postoperative pulmonary complications in this group. He was in better shape than most men. The ulcer had not perforated and so on. So it did not seem as though he ought to have died of a lung complication. What happened at the time of acute collapse I do

not know. I wonder if that could account for the death rather than uncomplicated pneumonia.

DR. CHESTER M. JONES: That collapse occurred before the signs of pneumonia developed.

DR. KING: There may have been an embolic basis for the lung complication.

DR. GEORGE W. HOLMES: Were there any x-rays of the chest?

DR. KING: Yes, there were.

DR. FREDERICK T. LORD: What were the signs over the collapsed area?

DR. KING: I saw him first on the day after operation. At that time he had dullness and diminished breathing at the right base, but not marked, not more than we get with most of these cases, because the right diaphragm goes up apparently in most abdominal surgery. There was also an area of bronchial breathing and râles at the left base at that time. I did not see him again until two days later. At that time he showed dullness, bronchial breathing and râles. I could not get spoken voice and tactile fremitus.

DR. HOLMES: The x-rays were taken on the sixth.

DR. KING: That was the day when the signs were of frank consolidation.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Ulcer of the stomach.
Lobar pneumonia.

ANATOMIC DIAGNOSES

1. *Primary disease.*

Perforating ulcer of the duodenum.

2. *Secondary or terminal lesions.*

Diverticulum of the duodenum.
Pneumonia.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: There are a number of interesting things in this case and there are a number of questions which I am afraid are going to remain permanently unsettled.

He did have pneumonia, most marked in the left lower lobe, although he had slight bronchopneumonia on the right side also. The duodenum showed two lesions, both just beyond the pylorus. One was a frank perforating ulcer which had gone through to the serosa at the time of autopsy, but had not actually perforated. The wall was so thin that when we first touched it our fingers went through it, but we were sure there was no perforation before our manipulation. Just as close to the pyloric ring and directly opposite, on the posterior wall of the duodenum, was a fairly large diverticulum one centimeter in diameter with a perfectly normal mucous membrane lining it. So it is an interesting possibility that the diverticulum may have been causing symptoms as well as or instead of the ulcer. It would account for the confusing x-ray signs.

DR. HOLMES: As I remember it, that diverticulum did not disappear. I remember we had that case up for discussion at one of our X-ray Department conferences. We thought that possibly the diverticulum was due to scar formation from a healed ulcer, or that perhaps it was an anatomic variation.

DR. MALLORY: The appearance of the diverticulum at autopsy was distinctly that of a true diverticulum, not the result of a penetrating ulcer.

DR. JONES: I do not believe his symptoms were due to the diverticulum, certainly not when he came in the first time. Dr. McKittrick said that the first time he saw him he was very tender. When I saw him in the Outpatient Department four days after he left the hospital he was perfectly comfortable, though his belly was very tender; even if we diverted his attention he still had some tenderness. It felt like an acute belly. I was in great fear that it was going to perforate. I do not believe you can get that sort of history with a diverticulum of the duodenum unless there is true diverticulitis, and that is a very rare thing.

DR. MALLORY: Yes. There is one other barely possible factor in the case. As I remember it he was a house painter, so the possibility of lead contact has to be considered.

DR. JONES: He realized that danger, and always had taken good care of himself.

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INFECTIOUS MONONUCLEOSIS AND LYMPHOCYTIC MENINGITIS

Two syndromes have been described in the last twenty years which may, possibly, be linked together as different manifestations of the same disease process. Acute infectious mononucleosis, originally noted in 1907 by Türk but more clearly described by Longcope in 1922[1], is a disease characterized by an absolute and relative increase in lymphocytes of the blood, occurring sporadically in young adults, accompanied by an acute throat infection and enlargement of the lymph glands and spleen. The course is usually benign, all adult cases reported having recovered. The disease is similar to, if not identical with, glandular fever, which is occasionally seen in epidemic form, particularly in children. The striking manifestation in the blood is the leucocytosis of about 14,000 per cu. mm. with the lymphoid cells comprising 40-75% of the total white blood cells, many of them being immature pathologic forms. The patient usually shows no definite nervous symptoms, and spinal fluid examinations have not been reported in the fairly extensive literature.

Another clinical picture is that shown by a mild meningeal reaction, in which the cerebrospinal fluid shows a marked lymphocytic pleocytosis without polymorphonuclear cells. The cells may reach 500 or more per cu. mm. The disease, characterized by an acute onset, with headache and vomiting and moderate fever, apparently is self-limited and lasts for three to six weeks. A small series of cases, possibly epidemic in character, was described by Viets in 1929[2].

In this issue of the *Journal* there appears a case report of a patient showing not only acute infectious mononucleosis but also meningeal irritation, with a pure lymphocytic formula in the spinal fluid. The relation between these two diseases has not previously been pointed out and the paper by Epstein and Dameshek would appear to correlate the two types of disease, or, at least, to show that patients with infectious mononucleosis may have cerebrospinal manifestations with changes in their spinal fluids.

REFERENCES

1 Longcope, W. T.: Am. J. Med. Sci. 164:781, 1922.
2 Viets, H. R. and Watts, J. W.: J. A. M. A. 93:1553, Nov. 16, 1929.

THE COUNTY HOSPITAL UNIT

THE development of county hospital units as a necessary aid to public health work, according to Mary D. Davis of the New Hampshire Board of Health, writing for the *United States Daily*, must be apparent to those who have watched the evolution of some of its phases which had their beginning in the work of the voluntary and philanthropic agencies. Organized effort and education have had far-reaching effects in bringing about better health and living conditions and a reduction in the mortality rates of all ages except those under one month and over fifty years. The problems are increasing, not because there are more of them, but because more people are being reached, our present problems including the high maternal, stillbirth and prenatal mortality rates, the number of children found with defects and the lack of staff and facilities adequately to care for these conditions and meet the new developments that are presented.

The answer to these problems, the writer believes, "is a well-equipped, modernly conducted county hospital unit, adequately and professionally staffed, having state or outside specialists as consultants, coöperating with the state departments and supplemented by the field work of the public health and social service workers of the county and State". This need not mean a higher tax rate, for in the few counties of New Hampshire where hospitals are main-

tained the taxes are no higher than in other sections.

The idea is sound and logical and is in keeping with the present effort to reduce the high costs of medical care, at the same time providing more adequate service for all classes of the population. The rural communities are no longer served as they once were by their own practitioners, and organized coöperation is now necessary if they are to be served at all.

POLIOMYELITIS IN 1931

THE Metropolitan Life Insurance Company has recently published figures on the poliomyelitis epidemic of 1931 as compared with that of 1916. Our recent epidemic, although the most extensive and destructive since 1916, nevertheless does not approach that year in numbers and severity.

In 1931 the sickness rate was 21 cases registered for each 100,000 of population. In 1916, the sickness rate was 53.3 per 100,000. The disease this year was also less virulent than in 1916, for in the states reporting both deaths and cases in the two years there occurred 10.3 deaths per hundred cases in 1931 as compared with 26.2 deaths per hundred cases in 1916.

Connecticut was the state with the highest reported sickness rate this year; 78.9 per 100,000 and Brooklyn again led the cities with a case rate of 94.5 per 100,000. Brooklyn's case rate was 224 per 100,000 in 1916. The states with case rates exceeding the average this year were New Jersey, New York, Connecticut, Massachusetts, Michigan, Minnesota, Rhode Island, Vermont and Wisconsin.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

COTTON, FREDERIC J. A.B., A.M., M.D. Harvard University Medical School 1894. F.A.C.S. Formerly Senior Surgeon-in-Chief, Boston City Hospital. His subject is "Tumors and Near-Tumors of Bone." Page 1223. Address: 520 Commonwealth Avenue, Boston.

PALMER, ROBERT S. A.B., M.D. Harvard University Medical School 1925. Assistant in Medicine, Massachusetts General Hospital and Harvard Medical School. His subject is "Etiologic Factors in Hypertension." Page 1233. Address: 264 Beacon Street, Boston.

EPSTEIN, SAMUEL H. A.B., M.D. Harvard University Medical School 1927. Assistant in Therapeutic Research, Boston Psychopathic Hospital. Assistant in Psychiatry, Harvard Medical School. Address: 484 Commonwealth Avenue, Boston. Associated with him is:

DAMESHEK, WILLIAM. M.D. Harvard University Medical School 1923. Assistant in Medicine, Beth Israel Hospital. Physician, Boston Dispensary. Physician to the Blood Clinic of the Beth Israel Hospital and Boston Dispensary. Instructor in Laboratory Medicine, Tufts College Medical School. Address: 484 Commonwealth Avenue, Boston. Their subject is "Involvement of the Central Nervous System in a Case of Glandular Fever." Page 1238.

OSGOOD, ROBERT B. A.B., M.D. Harvard University Medical School 1899. F.A.C.S. John Ball and Buckminster Brown Professor of Orthopaedic Surgery, Emeritus, Harvard Medical School. Consulting Surgeon, Boston Children's Hospital. Member, Board of Consultation, Massachusetts General Hospital. His subject is "Review of Findings of Committee on Medical Care, White House Conference, February, 1931." Page 1241. Address: 372 Marlborough Street, Boston.

CRISCITIELLO, M. JR. B.A., M.D. Johns Hopkins Medical School 1921. Pathologist, St. Luke's Hospital, Pittsfield, Mass. Address: Pittsfield, Mass. Associated with him is:

MESSER, EDWARD R. M.D. Albany Medical School 1909. Medical Staff, St. Luke's Hospital, Pittsfield, Mass. Address: Lenox, Mass. Their subject is "Neurologic Phenomena in the Course of the Treatment of Diabetes." Page 1246.

CHEEVER, AUSTIN W. A.B., M.D. Harvard University Medical School 1914. Physician, Clinical and Consultant Boston Dispensary. Outpatient Physician, Beth Israel Hospital. Instructor, Department of Dermatology and Syphilology, Harvard Medical School. Address: 472 Commonwealth Avenue, Boston. Associated with him is:

WHEELER, WILLIAM D. A.B., Ph.G., M.D. Tufts College Medical School 1918. Dermatologist, Beth Israel Hospital. Assistant in Dermatology, Boston Dispensary. Address: 366 Commonwealth Avenue, Boston. Their subject is "Mistakes in Diagnosis and Treatment of Syphilis." Page 1249.

OBITUARY

And Biographical Sketch

DR. GEORGE STRONG DERBY, 1874-1931

After a brief illness, George Derby in his vigorous prime and at the height of his career died of pneumonia at the Massachusetts General Hospital on the afternoon of Saturday, December 12th—a grievous blow no less to his friends and patients, than to his School and to the profession at large which held so many of his devoted pupils.

There was every reason to expect that, like his father, Hasket Derby, before him, he would have looked forward to a much longer span of life, for they had followed much the same path. Both were graduates of the Harvard Medical School; both house officers in the Massachusetts General Hospital; both had studied abroad under the leading ophthalmologists of their day—the father under v. Graefe, Bowman and Donders, and the son under Fuchs in Vienna, Snelling in Utrecht, Axenfeld in Freiburg, and later at Moorfields in London. They both in turn volunteered to serve, as their forebears had done, in the war that beset their particular generation; they both, needless to say, were eminent in their special field of work, holding positions of leadership in the Massachusetts Charitable Eye and Ear Infirmary and covering their specialty in the Harvard School. Each of them was in turn honoured by receiving an honorary membership in the Deutsche Ophthalmologische Gesellschaft. Indeed, with altered dates and some minor changes, the brief biographical sketch of the father, written by the son for Kelly and Burrage's "American Medical Biographies", might equally well stand as the record of his own shorter life.

A certain Roger Derby in 1671 migrated to this country from Devonshire, England, and after first settling in Ipswich, moved in course of time, after the death of his first wife, to Salem. There, to be stepmother for his eight children, he married the widow, Elizabeth Hasket, whose youngest sister complicated matters from a genealogical standpoint by becoming, ere long, sister Elizabeth's stepdaughter-in-law. But this is less important than the fact that the male descendants of Roger Derby, as sailing masters, navigators, and merchants, showed such energy in expanding the maritime trade into something beyond the mere coastwise exchange of Northern fish for Southern molasses and rum, that Salem soon became the leading port in the Colonies and all New England shared in her prosperity. How Britain's unwise Navigation Acts threatened to curb this mercantile activity, and what this source of irritation had to do with the growing estrangement from the Mother Country felt in these parts, is a story that needs no retelling here.

Richard, the son of Roger, with other Salem skippers, acted as one of the pilots in the Port Royal Expedition. The next Richard, his son, we find at the age of twenty-four, chief officer of a sloop outbound for Cadiz; and in course of time this second Richard's son, John, in a speedy schooner, the *Quero*, carried the first news to England of a certain affair at Concord and Lexington, which permitted the publication there, before the Royalists' account of the episode arrived, of an appeal to Great Britain, signed by Dr. Joseph Warren, President *pro tem.* of the Provincial Congress.

In the trying years that followed, the Derbys sent out from Salem a goodly proportion of the hundred and fifty or more armed privateers that played such a picturesque and hazardous rôle in the War for Independence; and the first news of the Treaty of Paris was brought home in 1783 in one of Richard Derby's speedy ships. This happened not long before his death at which time his son, Elias Hasket, took the helm of the great business and further enlarged its scope by reaching out for the China trade, one of the most famous of his boats having been the renowned clipper, *Grand Turk*.

This first Elias Hasket was followed by two more of the same name before we come to Dr. Hasket Derby, whose brother Richard, also a distinguished ophthalmologist, set up practice in New York City. Through what influence the medical tradition came at this time to be injected into this hereditarily mercantile family is not clear, though the fact that the second Richard Derby had married the widow of Dr. Ezekiel Hersey of Hingham may have had something to do with it; for it was she who not only founded the Derby Academy in Hingham but lived to carry out the wishes of her first husband in establishing the two Hersey Professorships (that of Anatomy and Surgery and that of the Theory and Practice of Physic) in the Harvard School.

We can see from all this what was in George Derby's blood and can easily understand his affection for all that had to do with watermanship and the sea. His father was one of the first to appreciate the attractions of Mount Desert as a summer place of residence, and there much of the children's vacation-time was passed on and in the water; and later on, after George's marriage to General Marshall Brown's daughter, his summer vacations came similarly to be passed at her ancestral home on Casco Bay near

Portland. His first tiny boyhood sloop naturally enough was christened the *Quero,* and his last boat—a fine schooner in which he and his wife, who shared his love for the sea, had planned for many a voyage—was no less naturally named the *Grand Turk.*

After his preparatory years at Noble's School, he entered Harvard graduating in the class of 1896; and it must have been a proud day for him when after three years of rowing on his class crew he finally won a seat in the University boat. Possessed of a superb physique, he subsequently kept up an active interest in oarsmanship; for years he regularly had a seat in the crew of the Union Boat Club and in 1914, when President of this Club, he raised the money to take abroad the crew which won the Henley regatta that year. And when for the last time he made one of the "gentlemen's eight" during race week at New London, he is said to have been ten years older than anyone else in the shell.

He participated also in other sports, was an excellent tennis player, as good a golfer as a doctor should allow himself to be, and was long a devotee of the less time-consuming, but more strenuous game of court tennis, in which he so excelled, partly due to his left-handed "cannon-ball service", he was the runner-up in the national tournament a few years ago. Thus, winter and summer, by hard and regular exercise in which he took delight, he kept himself throughout life in perfect physical trim. Beating his competitor was not what he sought from sport but the glow of health it brought him.

When early in 1916 the Harvard Medical School Unit, subsequently known as Base Hospital No. 5, came to be organized, Dr. Derby was one of the first officers to volunteer; and when a year later the Unit was sent overseas to serve with the British Expeditionary Force, he proved himself an invaluable member of the command. In the autumn of 1917, he served at one of the casualty clearing stations during the Passchendaele battles and subsequently came to be actively connected with the large ophthalmological hospital at Wimereux near Boulogne which was under the direction of his long-time friend, Colonel Sir William Lister, the nephew of Joseph. This experience peculiarly fitted him for duty with the American Army by which he was called in July of 1918 to become the Assistant Consultant in Ophthalmology with headquarters at Neufchâteau in the Vosges. Of his war-time experiences he has given a straightforward account in his college class-book for 1921 which however contains no hint of the pangs of homesickness which often beset him in those two years of separation from his family, for he was essentially a home-loving person.

He was a man, as can be seen, who was responsive to the call of service, and it was natural that positions of responsibility should be thrust upon him unsought. He was made president of his class in the Medical School, and held its members closely knit by bringing them together for a meeting and dinner every spring. On the solicitation of Dr. Roteh he long acted as President of the Board of the Infants' Hospital. For a period of some ten years he was Secretary of the Ophthalmological section of the American Medical Association, finally becoming its Chairman. He for long volunteered to fill the position of ophthalmologist to the Carney Hospital and to conduct the clinic his father had established there. For many years he served on the Board of Control of the National Society for the Prevention of Blindness. He was one-time President of the American Ophthalmological Society, the highest honour for those in his special field of work; and at the time of his death he was Chairman of the Suffolk District Medical Society, a position which entailed no little responsibility and sacrifice of time.

He was a highly skillful and successful ophthalmic surgeon and loved his branch of the profession, but in his professional life he perhaps accomplished more through his native ability as a wise administrator than as teacher or investigator. Nevertheless, he put through some excellent pieces of research work and was at the same time a most conscientious teacher of his specialty during the twenty-eight years he served on the staff of the Infirmary. Indeed, his was always one of the most popular courses in the undergraduate curriculum.

What was possibly his most important contribution to ophthalmology came from his studies of interstitial keratitis; and in connection with the Social Service Department he organized an effective system for the follow-up treatment of these difficult cases. It was for this work, I believe, that he was awarded the much prized Knapp medal, which is at the disposal of the ophthalmological section of the A. M. A. More recently he was engaged in a painstaking study of the threshhold of light perception—a matter of importance especially in the early recognition of the diagnosis of glaucoma on which subject he was an authority.

But George Derby's native modesty was such and his reticence about himself so great that there is little to record of the many researches in which he from time to time may have engaged. His practice was very large and engrossing and much of it was given over—as invariably happens with doctors whom people admire and trust—to the unremunerative care of the families of his professional brethren. After his appointment in 1923 to the Williams Professorship of Ophthalmology in the Harvard School—a post he might have had many years earlier for the asking—he with others set about to reorganize the ophthalmological work at the

Infirmary and succeeded in arranging for a continuous service of those in attendance there. And in later years he had much to do with the proper disposition and utilization of the fund for research in ophthalmology which grew out of the original gift to the School made by Dr. Lucien Howe of Buffalo. Dr. Derby having refused the directorship of this fund became the natural choice of everyone as Chairman of the committee and devoted himself to the building up of an ideal departmental library, in this way fulfilling what had long been one of his pet ambitions.

Thus George Derby moved through his all too short life respected by all and beloved by those who, like his patients, were permitted to come into close touch with him. He had a strong spirit of service, great sympathy, innate modesty, and a rare sweetness of nature which led him instinctively to push the other man into the more prominent place. His motto, chosen in childhood, had been "Moderation in all things." Beneath his seemingly phlegmatic exterior there burned a highly emotional nature which he kept under such perfect control that it was unapparent. Few realized that his life was one of constant self-restraint; and it would appear, indeed, that his almost daily bouts of exercise were used by him as a sort of safety valve; for, win or lose, a vigorous contest calmed him.

In this brief and inadequate sketch overmuch has possibly been said of the Derby traits so apparent in his make-up, and not enough of traits equally distinctive inherited in all probability from the Masons on his mother's side with its line of distinguished lawyers and clergymen. His strongly religious undercurrent of mind and the fact that for many years he had served on the Dean's Council at St. Paul's Cathedral was scarcely known even to his intimates. He was a Grecian in his love of health, of bodily fitness, and of the outdoors; but at the same time he never lost sight of the goodness of the Lord in the land of the living.

MISCELLANY

A RADIO MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

Overweight—Cause and Prevention*

One eats and drinks at least six pounds of food and water daily. Of this four and a half pounds will be water and waste, and in the case of a healthy person does not affect his body weight. The pound and a half of food eaten daily obviously is not stored, otherwise one would gain forty-five pounds of weight each month. The pound and a half of food is of value to the body in proportion to the number of calories it contains because it must be converted into energy either directly to pay for work done or indirectly to replace body tissue consumed in work. In terms of energy if one eats more than one needs, body weight will increase. If one eats less than one needs, body weight will decrease.

With most people despite variations in the value of food taken from day to day, there is a balance between the energy intake in the form of food and energy output in the form of heat and work so that from month to month or year to year there is no change in body weight. The variations in body weight due to storage or loss of water may be sudden, are always temporary, and would have no place in this talk but for the fact that there are many so-called reduction methods which depend solely upon a temporary loss in body weight due to a loss from body tissues of water in the form of sweat, urine, water vapor, etc. These methods are of great value to the jockey and the prize fighter who wish to lose weight temporarily to bring themselves within certain weight limits. Sudden losses of weight are likely to do a fat person more harm than good. Furthermore anyone who loses weight rapidly is likely not only to regain the weight lost but to reach a new high level of weight.

When a doctor sees a patient who has gained weight at a rate faster than fifty pounds in a year he is quite surprised. Most people put on weight at a much slower rate. This you will appreciate if you think of the girl whose marriage weight is one hundred pounds at the age of eighteen and who is very fat at the age of fifty, weighing one hundred and eighty pounds, the weight having come on so gradually that she can not tell the rate at which it was put on. Consider that this means a gain of only two and a half pounds a year. This means that there was an excess of food intake over body needs of only the equivalent of one-half level teaspoonful of butter a day, because half a level teaspoonful of butter a day means three pounds of butter a year. Anyone who eats three pounds of butter a year more than they need will gain two and a half pounds of fat. If you prefer to consider it in the terms of sugar: one full-sized lump of sugar per day more than one needs will cause a gain of two and a half pounds a year or eighty pounds between the age of eighteen and fifty years. With this arithmetic in front of you it is very easy to realize the correctness of the claim of Dr. Newburgh of Ann Arbor that excess fat always means excessive food intake.

It has been pointed out many times that it is impractical to attempt to lose weight by increasing work without being careful as to one's diet. In fact most people will gain weight after exercise because it gives them a larger appetite. In order to lose an extra ten pounds in weight one does not need to cut down one's diet very greatly below the daily need, and this is rarely a difficult problem. On the other hand, to lose fifty or seventy-

*Broadcast December 3, 1931, Station WBZA, 4:50 P. M., Hotel Bradford.

five pounds in weight requires heroic giving up of food for a period of months, if not years. Rarely is it wise to lose weight at a rate faster than a pound a week or fifty pounds a year. Because of variations in the water content of the body, variations in weight from day to day mean little, and one should watch one's weight by the month rather than by the day.

The average American and every fat American eats daily four ounces of fat and four ounces of sugar. The energy value of fat is the same on the plate as on the body. Sugar has half the energy value of fat. Obviously then, if one were to omit all of the sugar and all of the fat taken daily without otherwise changing the diet one would lose six ounces of fat a day, but to lose a pound a week or fifty pounds a year requires a loss of only half of this amount or three ounces of fat a day. Therefore, whoever conscientiously, over a long period of time, cuts in half the amount of fat and sugar which he takes daily will lose weight at the rate of a pound a week. This is easy to do if the following simple rules are observed:

(1) Add no sugar to any food or drink after it reaches the table.

(2) Avoid the use of visible fat. This means add no cream to coffee, no butter to bread or potato in the kitchen or at the table. Eat no fried food or gravy, and leave on your plate whatever fat is served with meat. Use only salt, pepper or vinegar for salad dressing.

(3) Avoid nuts and candy whether at or between meals.

(4) Avoid all made desserts including ice cream, pastry, puddings, cake, preserved fruits, and the like.

(5) Eat freely of fresh fruit, vegetables, lean meat, fish or chicken, bread, baked or boiled potato, cereals, and milk (not cream).

(6) Eat three meals every day, and if hungry or faint between meals, eat a very small amount, e.g., one and only one of the following articles: A plain cracker without butter, an orange, half a glass of ginger ale, half a banana, a glass of milk from a well-shaken bottle.

(7) Be sure to weigh yourself on the same scales and clothed in the same manner or better still without clothes at the same time of day once a month and once only.

(8) Know that if you have failed to lose weight you have failed to follow the above rules throughout every day of the month.

These remarks may seem to you to be directed more toward the treatment than the prevention of overweight but without some knowledge of the facts given you this evening, it would be difficult for you to understand the need, if one would like to avoid overweight, of limiting constantly, according to one's actual needs, the amount of food consumed daily.

Who should want to avoid gaining weight? Everyone who is thirty-five years old and has attained the average weight for his height and age. Even the younger people, if they are more than thirty pounds over the average weight, should take care to prevent further gains in weight. Anyone who is even five pounds overweight will do well to observe the rules laid down for the fatter people until he has reduced his weight to the desired level and from that time on be careful not to eat more than he needs at any time.

Bear in mind the fact that an extra pat of butter at each meal will result in a gain of twenty-five pounds in a year.

We know that after reaching the age of thirty-five, the more one is overweight, the shorter is the time one may expect to live. It has been repeatedly pointed out that there would be very few cases of diabetes but for a preceding overweight. Similarly high blood pressure and hardening of the arteries of the kidneys and the heart occur most often in those who are or have been fat. Troubles with the feet, knees, and back are rare in those who have not been fat. The mortality of acute illness is much greater in persons who are overweight than in those of normal weight.

CORRESPONDENCE

A SUGGESTION RESPECTING RURAL PRACTICE

To the Editor of the *New England Journal of Medicine,*

Dr. Stearns, Dean of the Tufts College Medical School, in a communication to this *Journal* on November 12 last, suggested a plan for the "better distribution of doctors", one of the main features of which is placing undergraduates in hospitals outside of the metropolitan district as junior assistants. "This frequently leads," he says, "to internship in the same hospitals, and later to entering practice in the environment of the hospital."

Dr. Stearns goes on to say, "It is not maintained that this is the best possible way to teach medicine, but it is believed that it will prove an aid to communities outside of the metropolis." And in conclusion Dr. Stearns says, "It seems proper to make some sacrifice in scholarship and to add to the ideal of the perfect doctor another, namely, the best possible medical service for communities now obliged to accept those with no adequate standard."

One would suppose that the "best possible medical service" could only be rendered by one who had been taught medicine in the "best possible way," which Dr. Stearns admits is not the case in his plan. So far as getting into practice in the environment of a hospital outside of the metropolis is concerned, I do not believe there is, or will be, any difficulty in obtaining the best taught and trained physicians. Such localities, from the very fact that they have a hospital, must be of considerable size and importance and offer the facilities of a hospital. Such communities, therefore, would not come under

the head of those "now obliged to accept those (physicians) with no adequate standard".

Dr. Stearns makes no suggestion as to how adequate medical service shall be obtained by the real country town or small village. If he thinks that graduates from a first-class medical school, trained in the modern methods of diagnosis, will to any extent become real country practitioners, I believe he is doomed to disappointment. There is ample evidence that the country doctor as such is "passing", and even the country doctor himself admits it. The problem then still remains as to how the best medical service can be offered to all, in city or country, to rich and poor alike, and particularly to the dweller in the country. What is to take the place of the passing "country doctor"? Unless the profession speedily works out some plan, the State is likely to step in and assume the responsibility. Indeed, when one considers all the various activities of the Massachusetts Department of Public Health with its clinics and hospitals, it would seem that this Commonwealth was already on the road toward state medicine.

One way of solving the problem of giving the "best medical service" to outlying communities is the establishment of medical centers, with a well-equipped hospital and a lying-in department. From such centers, an area of a radius of 10 to 15 miles could easily be served, with the present good roads and the automobile. At such centers, physicians thoroughly trained in the "best possible way" would, I believe, locate, and thus the country in this area would be able to obtain the "best modern medical service". The true method, it seems to me, is first to have physicians trained by the "best possible" medical teaching, and secondly to devise a plan whereby this quality of medical service can be supplied to all, rich and poor alike, wherever they may be. Any letting down in the best medical teaching, for the purpose of a "better distribution of doctors", seems to me to be a questionable expedient.

EDWARD O. OTIS.

A SURGICAL PROCEDURE FOR THE RELIEF OF URETHRAL CARUNCLES

December 16, 1931.

Editor, The New England Journal of Medicine,

I was very much interested in a paper by Dr. Clyde L. Deming in the September third number of *The New England Journal of Medicine*, entitled, "A New Surgical Procedure for the Treatment of Resistant Urethral Caruncles."

After trying various methods of treatment of urethral caruncles I developed an operation which is identical with that described by Dr. Deming. This operation was first used on September 29, 1922, the patient being one who had been repeatedly operated by quite competent surgeons, always with recurrence of the caruncle. The relief in this case was complete, and since that time I have used the operation in thirty-three additional cases. I have checked the results quite thoroughly, and they have been uniformly good.

My purpose in submitting this note is not to claim priority for the observation, but only to emphasize the perfect satisfaction that one may expect if he uses this operation.

Very truly yours,

CHARLES E. HOLZER.

The Holzer Hospital, Gallipolis, Ohio.

MEDICAL BROADCASTING

New England Journal of Medicine,

Gentlemen:

For a number of years I have been a subscriber to your publication. Comparatively speaking I do not believe there is any medical publication in our country which is of more practical value than yours.

I have been interested for years in tuberculosis work and I am interested in the broadcast of your society on, "The Care of Pulmonary Tuberculosis." Whether it may be criticism or suggestion it would seem to me that a broadcast should be worded more simply and I believe the public generally would grasp better the principles if simpler words and shorter sentences were used. I believe this is one of the fundamental principles of broadcasting and I am writing you because I feel very keenly the great possibilities of this type of publicity.

I hope you will accept this communication in the spirit in which it was written. Understand that there is no criticism of the very excellent presentation of the subject. It is simply a matter of presenting it in a way which will accomplish the best results.

Very respectfully yours,

E. N. NESBITT.

307 Metz Bldg., Grand Rapids, Michigan.

RECENT DEATHS

BROWN—DR. WILFRED GARDNER BROWN, an important medical man of Plymouth, died there, December 12, 1931, at the age of 74.

He was born in Leicester, August 29, 1857, and was a graduate of Harvard Medical School in the class of 1884, some of his classmates being H. C. Baldwin, J. T. Bowen, H. B. Howard, H. W. Kilburn, O. J. Pfeiffer and Leonard Wood. In 1888, the year Dr. Brown joined the Massachusetts Medical Society, as a medical expert he identified the bones of the Myles Standish family. He was for many years visiting physician to the Jordan Hospital, a member of the Massachusetts Association of Boards of Health and of the National Association for the Prevention and Treatment of Tuberculosis. At one time he was president of the Somerset Medical Association of Plymouth. He was a Fellow of the American Medical Association. In 1930 Dr. Brown served on the local committee of arrangements to plan and make successful the meeting of the Massachusetts Medical Society in Plymouth.

JOHNSON—DR. HAROLD ABBOTT JOHNSON, urologist connected with the Lynn Hospital, died in that city, December 11, 1931, at the age of 58.

A native of Brookfield he was a graduate of Phillips Exeter Academy, and of Williams College in 1895. He took his M.D. at Harvard Medical School in 1899. While still a student in the school he was appointed assistant surgeon U. S. N., serving in the Spanish-American War. Later he was a surgical house officer at the Massachusetts General Hospital. He moved to California and was assistant professor of surgery and surgical pathology in the University of California. During the World War he held a commission in the Medical Corps of the Army and was stationed in New York. He settled in Lynn in 1913 and joined the Massachusetts Medical Society. Dr. Johnson was a member of the American Urological Association.

He is survived by his widow, Edith Varney Johnson, and by one son.

OBITUARY

RESOLUTIONS ADOPTED BY THE STAFFS OF THE MASSACHUSETTS EYE AND EAR INFIRMARY ON THE DEATH OF DR. GEORGE S. DERBY

The Ophthalmological and Oto-laryngological Staffs of the Massachusetts Eye and Ear Infirmary greatly lament the death of Dr. George S. Derby.

Dr. Derby was connected with the Massachusetts Eye and Ear Infirmary for twenty-eight years, as Ophthalmic Clinical Assistant, Ophthalmic Assistant Surgeon, Ophthalmic Surgeon, and finally for the past seven years as Ophthalmic Chief of Service. He always had the welfare of the Infirmary near to his heart, and gave close attention to every detail relating to the work of the Institution. To him is chiefly due the present excellent organization of the Ophthalmic Service. His work here has received wide recognition. He saw to it that every patient was given all possible care, and he was equally zealous in the interests of the staff. His unsparing efforts in behalf of the Infirmary no doubt contributed to his untimely death.

Dr. Derby gained the high estimation and esteem of every member of the Staff. In his death the Infirmary, each member of its staff, and the community at large, have sustained an irreparable loss.

The Ophthalmological and Oto-laryngological Staffs extend their deepest sympathy to Mrs. Derby and all members of his family.

Voted that the Secretaries of the Staffs send a copy of these resolutions to Mrs. Derby.

W. Holbrook Lowell,
Secretary of the Ophthalmological Staff.
Frederick L. Bogan,
Secretary of the Oto-laryngological Staff.
December 17, 1931.

NOTICES

REMOVAL

E. Philip Freedman, M.D., announces the removal of his office to 116 Main Street, Peabody.

AN INCORRECT STATEMENT

Our attention has been called to the practice of one Locke who is reported to have been treating arthritic patients resident in and about Boston. This man lives somewhere near Montreal and has achieved much notoriety with reference to his alleged cures. The very unusual statement has been made that he has been asked to ally himself with a large clinic in the Middle West for the purpose of demonstrating and carrying on his methods of practice. A letter to this clinic has brought the answer that they have no knowledge of the man and that "there has been no discussion with him regarding the demonstrating of his methods of practice at the Clinic".

AN ASSIGNMENT BY THE U. S. P. H. S.

Surgeon M. V. Veldee. Directed to proceed from Washington, D. C., to Boston, Mass., and such other points in the State of Massachusetts, as may be necessary, in connection with field studies of scarlet fever. December 4, 1931.

RADIO HEALTH MESSAGES

Sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

Courtesy WBZA. Thursdays at 5:17 P. M.

December
31 Mental Health

State House Broadcast

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 12:30 P. M.

The various activities of the Department are discussed by the Directors of its nine Divisions.

Radio Health Forum

Directed by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 4:50 P. M.

Queries from the public are answered under the sponsorship of the Department.

Questions on Health and Prevention of Disease may be sent to: Radio Health Forum, State Department of Public Health, State House, Boston.

PROGRAM

Special Series of Broadcasts

Sponsored by the Massachusetts Department of Public Health. Courtesy WEEI. Mondays at 7:15 P. M.

White House Conference on Child Health and Protection

Round Tables

December
28 Round Table No. 2—How Much Care Does the Well Child Need?
Conducted by Mr. Frank W. Kiernan

1932
January

4 Round Table No. 3—Health in Education—Education in Health
Conducted by Raymond Patterson, Ph.D.

11 Round Table No. 4—What a Community Owes to Its Children
Conducted by Lila Owen Burbank, M.D.

18 Round Table No. 5—Unto the Least of These
Conducted by Mr. Alfred F. Whitman

REPORTS AND NOTICE OF MEETINGS

THE THIRD ANNUAL MEETING OF THE NEW ENGLAND OBSTETRICAL AND GYNECOLOGICAL SOCIETY

The third annual meeting of the New England Obstetrical and Gynecological Society was held in Boston on Wednesday, December 2, 1931.

The meeting was largely attended by members from the various New England States. Operative clinics were held in the morning at the Free Hospital for Women, Brookline, and at the Gynecological and Obstetrical Clinics of the Boston City Hospital. A buffet luncheon was served at noon at the University Club.

Afternoon clinics were held by the Gynecological Service of the Carney Hospital and at the Boston Lying-In Hospital.

The officers elected for the coming year were as follows:

Edward S. Brackett, President, Providence, R. I.
William P. Graves, Vice-President, Boston, Mass.
Joseph O'Connor, Secretary, Worcester, Mass.
James R. Miller, Treasurer, Hartford, Conn.
Frederick J. Lynch, Recorder, Boston, Mass.
Thomas Almy, Chairman Board of Governors, Fall River, Mass.
Frank A. Pemberton, Chairman Executive Committee, Boston, Mass.

In the evening a dinner was served at the University Club, after which the members were addressed by Francis J. Carney, a prominent Boston attorney, who gave a very interesting talk concerning the doctors he had encountered on the witness stand.

Tentative plans were made for the Spring meeting to take place at Worcester, Mass.

FRED. LYNCH, M.D., *Secretary.*

NEW ENGLAND PEDIATRIC SOCIETY

The December Clinical meeting of the New England Pediatric Society was held December 11 in the Jackson Memorial, the new building of The Boston Floating Hospital at Ash and Nassau Streets. The meeting, presided over by Dr. Elmer W. Barron, Physician-in-Chief, was attended by more than fifty prominent New England pediatricians. After the clinical meeting and discussion, the group inspected the Jackson Memorial and the connected Medical Center Building of Tufts Medical School. Dinner was served in the main dining hall, at 6:30, the company adjourning to the Medical Library, 8 The Fenway, for a lecture at 8 o'clock by Dr. Homer F. Swift of the Rockefeller Foundation, New York,—"A Discussion of the Recent Progress in Research Work in Connection with Rheumatic Fever."

The following officers were elected for the coming year:

President: Dr. Lewis Webb Hill, Boston.
Vice President: Dr. Fred H. Allen, Holyoke.
Secretary-Treasurer: Dr. Gerald Hoeffel, Boston.
Member of Council: Dr. Elmer W. Barron, Boston.

SOUTH END MEDICAL CLUB

Dr. Hilbert F. Day, Surgeon-in-Chief, New England Medical Center, lectured on "Treatment of Enlarged Veins of the Lower Extremity" at the meeting of the South End Medical Club held December 15 at the office of the Boston Tuberculosis Association. Dr. Day said: "The chief causes of varicose veins are heredity, childbirth, and pressure. The most effective treatment nowadays is the injection of chemical substances, sodium chloride and glucose, a varisol solution and quinine urethane. The salines and salicylates have no toxic effect but do cause cramps. Quinine has been used most effectively and causes no cramps. However, every patient should have a complete physical examination before any injection is given, as there are a few definite contraindications such as endocarditis, acute phlebitis and pregnancy. No pregnant woman should be given a quinine injection as it may cause an abortion. No more than 4 cc. of quinine urethane solution should be given in one day and every patient should be tested out for reactions caused by quinine. It is wise to give 1/3 cc. at first and await reaction. It is also necessary to have the patient rest after the injection. Of 58,000 tabulated cases there have been but four reported deaths following injections. One of these was caused by pulmonary embolism. This figure is much lower than the mortality of the operated cases. The injection method has both a financial and time-saving advantage."

Dr. Day started the first definite clinic at the Boston Dispensary for the treatment of varicose veins by injection in November, 1928. The Medical Club asked many questions of Dr. Day during the luncheon.

GREATER BOSTON MEDICAL SOCIETY

The regular monthly meeting of the Greater Boston Medical Society and the Beth Israel Hospital was held in that hospital on the evening of December 9, 1931. Dr. William Dameshek presided.

Dr. Moses Swick spoke on "Intravenous Urography as a Diagnostic Aid," basing the discussion on

his experience with Uroselectan at the Mount Sinai Hospital, New York City. Dr. Swick is the first to have used this procedure in urological diagnosis. The drug used is freely soluble, non-toxic, stable and is rapidly excreted in the urine. Dr. Swick has seen no severe reaction following its use, although the patient does occasionally experience nausea, vomiting and a generalized feeling of warmth. In a few cases there is a moderate degree of local pain at the time of injection. This method should not be considered a panacea for urologic diagnosis and is not intended to supplant older diagnostic procedures including cystoscopy and retrograde urography. Functional kidney tissue is necessary for visualization but a small amount of kidney tissue is able to secrete enough of the dye to cast a satisfactory shadow. In cases of ureteral obstruction with secondary hydronephrosis the reservoir mechanism results in visualization even though the renal function is very low and results in an intensification of the shadow when the function is good. Bilateral failure of visualization may be due to gas and feces in the intestinal tract, improper time of exposure, or to a temporary suppression of kidney function. In such cases the test should be repeated. The only contraindication to its use is frank or latent uremia, as determined by the blood chemistry and tests of renal function.

Dr. Swick showed lantern slides and films of a varied collection of cases in which this method has been of diagnostic aid. It is especially useful in patients with vague abdominal symptoms as it offers a method of determining the presence or absence of pathology in the urinary system without subjecting the patient to the discomfort of cystoscopy. In tuberculosis of the urinary tract it is often impossible to do cystoscopy and ureteral catherization because of the extreme irritability of the bladder. In these cases it is possible to identify the tuberculous kidney by means of intravenous urography. In old persons and in infants and children, this method has been especially successful. His slides demonstrated the diagnosis of stone, tuberculosis, tumors, and congenital anomalies. Dr. Swick has found that compressing the bladder for five to ten minutes before exposing the films results in a more complete filling of the renal pelvis. He also discussed the oral use of a similar drug with which he has been working recently, and which has given excellent results thus far.

Dr. E. Granville Crabtree spoke on the "Practical Applications of Intravenous Urography." This method has greatly broadened the urologist's field of diagnosis enabling him to establish a diagnosis in many cases without subjecting the patient to the more severe procedure of cystoscopy. Dr. Crabtree has found it of special value in cases of ureteral calculus, in tuberculous infections of the urinary tract, and during pregnancy.

In the discussion, Dr. George Prather gave his experiences with the method at the Boston Lying-In Hospital. It has been found valuable in three classes of patients: first, in those patients where there is vague abdominal pain that might be of renal origin; secondly, in patients with a single kidney where retrograde urography is to be avoided; and, thirdly, in patients with a history of renal disease. In his series of cases there has been no indication of danger to either the mother or child. Dr. Boris E. Greenberg stated that he has found intravenous urography especially valuable in infected cases where the retrograde method may further spread the infection. Dr. Samuel A. Robins pointed out that whereas the older methods simply gave data as to the size, position, and contour of the urinary tree, this new method allows the radiologist to observe the physiologic functioning of the system.

THE HEART COMMITTEE OF THE CAMBRIDGE TUBERCULOSIS AND HEALTH ASSOCIATION

The Heart Committee of the Cambridge Tuberculosis and Health Association sponsored a meeting on December 14 at the home of Mrs. Zachariah Chafee, Jr., 26 Elmwood Avenue, Cambridge, which was attended by members of the Association, public health and visiting nurses, social workers and teachers who listened to an address by Dr. T. Duckett Jones, Research Director of the House of the Good Samaritan, on "Functions of the Heart, and the Community's Responsibility in Combating Heart Disease."

This is the first of the series of educational talks which the Committee will give during the winter. Mrs. Chafee is chairman of the Heart Committee.

MABEL GREELEY SMITH,
Executive Secretary.

WEBSTER-DUDLEY MEDICAL CLUB

A meeting of the Webster-Dudley Medical Club was held in Webster December 16. Dr. Thomas F. O'Brien, Obstetrician of the Worcester City Hospital spoke on "Conduct of Normal Labor."

Dinner was served.

HARVARD MEDICAL SOCIETY

The regular meeting of the Harvard Medical Society was held in the Peter Bent Brigham Hospital on December 8. The address of the evening was given by Dr. John Fulton, Sterling Professor of Physiology, Yale Medical School. Dr. H. R. Viets presided as chairman.

The medical case was presented by Dr. Eppinger. A fifty-one-year-old laborer entered the hospital complaining of progressive weakness and stiffness of the legs of two years' duration. At the onset of the illness there was numbness and tingling of the toes for which, after a blood examination, he was given liver extract by mouth. Nevertheless, his legs continued to grow weaker; for three months he had been confined to bed.

Physical examination showed a stiff back, spastic legs, bilateral clonus and Babinski, absent vibration and position sense. The red count was 3.5, the hemoglobin 50. He was given 1 cc. of liver extract subcutaneously or intramuscularly daily. The

red count soon became normal. All paresthesias are gone, but the legs are still weak. The diagnosis was combined system disease.

In the discussion, Dr. Ayer stated that a fourth of these cases of cord degeneration will get better if treatment is begun early. Dr. Viets has observed that the spastic types do worse than the ataxic, and that the red count must be kept well over five million in cases with neurologic symptoms.

Dr. Mahoney presented the surgical case. A fifty-three-year-old paperworker was well until three months ago, except for chronic bronchitis in the past five winters. At this time he fell while at work. He was well for another month when because of dizziness he had to go to bed, where he has remained since. He has shown signs of mental regression and negativistic behavior in the past month.

He was an uncoöperative patient, stuporous, but not somnolent. There was a left hemiparesis, with slight rigor and catalepsia on the same side. Reflexes were hyperactive on the left. There was left facial weakness, and bilateral Babinski and clonus. The eyegrounds were negative, pupils reacted sluggishly. No evidence of arteriosclerosis, malignancy, or hypertension could be found.

The blood and spinal fluid Wassermann were negative. The gold sol showed a tabetic curve, a protein of 140, and 23 lymphocytes. During his stay the patient has been incontinent. The lesion is considered to be vascular in type, probably due to syphilis.

Dr. Fulton spoke on "The Evolution of the Babinski Response as Illustrated in the Monkey, Baboon, and Chimpanzee." His work is significant since it indicates a method by which the neurologic development of the human nervous system can be studied experimentally.

During the World War the Babinski response was noted in many cases of transection of the spinal cord. Many neurologists considered that the dorsiflexion of the toe was always associated with hamstring contraction and ankle flexion. It was therefore of interest to determine the response in other primates.

Transections were made of the spinal cords of monkeys. All reflexes are abolished for about four days because of the spinal shock. Then, surprisingly, pinching of the sole will produce a tremulous flexion of the hallux. This is usually the only response to appear. In a few cases, at the end of the third week, stimulation will result in withdrawal of the extremity.

In humans a little flexion of the toes may be noted on stimulation four days after transection, while about the third week the withdrawal response appears.

Because of the difficulty in obtaining the Babinski response in the monkey by transection, resection of the motor foot area in the cortex was tried. This was unsuccessful. Complete removal of a hemisphere was done as well without success. Then semisections of cords were done. Two weeks after this operation, pinching of the sole will produce the typical Babinski phenomenon.

A resection of the motor foot area in a baboon resulted in a primitive form of the Babinski which has persisted for eight months.

The chimpanzee, a higher primate, was next studied. The motor foot area of the cortex was removed. On the second day after operation stimulation resulted in a little jerking extension accompanied by withdrawal of the leg. On the fifth day the extensor response was definite. This response continued for five months, although the withdrawal component gradually disappeared; in three months only the updrawing of the hallux remained.

Then in the same chimpanzee the opposite motor foot area was removed. This resulted in a permanent Babinski response, much increased, and a new postural position of the toes, which consisted of outward deviation of all except the hallux. The reason for the additional changes noted after bilateral extirpation of the motor foot areas is that some of the descending corticospinal fibers do not cross, but descend in the same side of the cord. These experiments show the importance of the corticospinal tract in the production of the Babinski phenomenon.

In the discussion that followed, Dr. Cushing cited a case which showed the importance of the ipselateral corticospinal fibers in man. The patient had a meningioma removed from the foot area of the left hemisphere with recovery from the previous spastic paralysis of the contralateral right leg. Subsequently, fully fifteen years afterward, a similar recurrent tumor appeared involving the foot area of the right hemisphere. The removal of this secondary tumor produced an immediate bilateral spastic paralysis equally involving both lower extremities from which the patient has shown scarcely any tendency to recover. One may assume, therefore, that the leg centre of the right hemisphere had come to take over the motor function of both feet.

THE WILLIAM HARVEY SOCIETY

The December meeting of the William Harvey Society of Tufts College Medical School was held at the Beth Israel Hospital on Friday evening, December 11. Dr. Joseph Hersey Pratt, Professor of Clinical Medicine, Tufts Medical School, acted as chairman. Dr. Hans Zinsser, Professor of Bacteriology and Immunology, Harvard Medical School, spoke on "Typhus Fever and Allied Diseases."

Of the four great pestilences, smallpox, plague, cholera, and typhus, the last has probably had the most profound influence on the political history of the world. Typhus has always been very closely related to war because the conditions of war favor its propagation. While it doubtless existed long before, the first clear account of the disease appeared during the fifteenth century, and during the sixteenth, seventeenth, and eighteenth centuries one epidemic after another swept throughout Europe. The Serbian epidemic of 1914-15, in which there was a mor-

tality of from sixty to seventy per cent. and approximately 300,000 deaths, had a profound influence on the early course of the World War. It has been estimated that between 25 and 30 million cases occurred in the Russias between 1917 and 1923 with about three million deaths. There is some evidence that the disease existed in Mexico in pre-Columbian times and the Aztecs had a disease that was identical with the typhus fever seen in Mexico today.

In 1909 Nicolle established the fact that the European form of the disease was transmitted from man to man by the louse and that apes could be infected by the bite of the human louse. This established the method of propagation in epidemic times but did not explain the occasional sporadic cases seen in various areas. In 1926, Maxie studied an outbreak of typhus fever in Maryland and Delaware that did not seem to be transmitted by the louse and suggested that there was probably an animal reservoir. It was later shown by Dyer and his associates that the rat fleas in Baltimore carried the virus. In conjunction with the American Hospital in Mexico City, the Harvard Laboratories began the search for an animal host. Two strains of typhus fever virus were obtained from rats caught in the Belam prison in that city. It was also shown that the rat louse, polyplax, could transmit the disease from rat to rat. Careful research has shown that the cycle of transmission is as follows: The animal reservoir is the rat and the rats are cross-infected by the rat louse and rat flea. It is transmitted to man by the rat flea and the human louse transfers it from man to man. It is possible, but not probable, that the bedbug is also involved in the cycle, although the virus can live in the bedbug.

Nicolle in 1911 proved that blood from typhus fever patients produced a febrile reaction in guinea pigs and that the virus could be carried in these animals, thus paving the way for subsequent investigators. The virus of Mexican typhus fever causes a febrile reaction in four to six days and at the same time there is a marked scrotal swelling. Examinations, first thoroughly made by Mooser, show that the lesion is in the tunica vaginalis, that this structure contains many small rod-like bodies identical with rickettsia and that the tissue is highly infectious. The virus of European typhus fever, however, produces a temperature change on the ninth day and no scrotal swelling is observed at that time. However, there is a slight reaction in the tunica vaginalis on the third or fourth day, before the onset of fever, and again the tissue is infectious and contains rod-like bodies. These observations establish the difference between Mexican and European typhus fever.

Many organisms have been considered of etiologic importance in the past but most have been the result of uncritical bacteriologic observations and have subsequently been shown to be secondary invaders or the result of experimental error. The proteus bacillus of Weil and Felix is agglutinated by the serum of the patient with typhus fever and the reaction is of great diagnostic significance. However, the bacillus does not cause infection in experimental animals, does not immunize, and cannot be recovered from either lice or rats suffering with the disease and hence cannot be considered of etiologic importance.

Dr. Zinsser is convinced that rickettsia prowazeki is the cause of typhus fever. It has been demonstrated in the tissues of men, lice, and rats. Almost pure suspensions of the organism may be obtained from washings of the peritoneal cavities of rats suffering from Mexican typhus fever and these suspensions cause the typical disease when injected into guinea pigs and other rats.

All races and individuals are susceptible and there is no difference between the sexes. The disease usually runs a milder course in children. One attack confers an immunity for about two years and there is probably an increased resistance for years. There are protective bodies in the blood stream when the temperature subsides but they disappear from the circulating blood in about three weeks. No satisfactory anti-serum has been developed as yet and the convalescent serum gives only a short protection. Active immunity can be developed only by the use of the virus, never by filtrates. Immunization with the living virus is possible, but too dangerous to be practical. Thus far no practical vaccine has been made but a method is being developed at the Harvard Laboratories that has proved satisfactory in the immunization of animals and may eventually prove to be satisfactory in man.

The clinical course of typhus fever is quite characteristic, but it is practically impossible to make the diagnosis before the rash appears. There is fever and malaise for several days with a terrific headache. Mental symptoms with delirium and excitement may be prominent features. The rash appears on the sixth or seventh day, is purpuric in character, covers the body like a mantle and leaves a brownish discoloration as it fades. The fever usually comes down in about two weeks. The Weil-Felix reaction which becomes positive on about the eighth or ninth day is of greatest diagnostic importance.

Mexican and European typhus fever are two distinct types of the disease each having a characteristic course in guinea pigs. Yet they confer a cross immunity, illustrating their close relationship. It is possible to immunize rats against either the Mexican or European virus by the use of Mexican vaccine. This is of extreme importance because it has not been possible to produce the European virus in a concentration satisfactory for vaccination experiments.

The Malayan type of typhus fever has further differences from these two and recently Monterio has described a disease in San Paulo that has some resemblance to typhus fever and some to Rocky Mountain spotted fever and is transmitted to human beings by ticks rather than by lice. The Eastern and

the typical types of Rocky Mountain spotted fever both have resemblances to typhus. In these six diseases Dr. Zinsser believes that there is an opportunity to study the evolution of a group of diseases as they are all so closely related. Tsutsugamushi fever also probably fits into this series.

MASSACHUSETTS PSYCHIATRIC SOCIETY

The next meeting of the Society will be held at the Boston Psychopathic Hospital, 74 Fenwood Road, on Wednesday evening, December 30, 1931, at eight o'clock. The program will be as follows:

"A Criminological Laboratory in the Massachusetts Correctional System," Mr. Frank Loveland, Jr., Director of Research in Crime Prevention, Department of Correction.

"Two Years' Experience of the Briggs Law (1928-1930)," Winfred Overholser, M.D., Boston.

Light refreshments will be served.

WINFRED OVERHOLSER, M.D., *Secretary.*

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

December 30—New England Baptist Hospital. See page 1220, issue of December 17.

December 30—Massachusetts Psychiatric Society. See notice above.

January 6 - June 1—New England Heart Association. See page 891, issue of October 29.

January 8 - May 6—The William Harvey Society. See page 745, issue of October 8.

March-April, 1932; Autumn, 1932—International Postgraduate Courses in Berlin. See page 1169, issue of December 10.

April 4-8, 1932—The American College of Physicians. See notice on page 1232, issue of June 4.

May 9-13, 1932—American Medical Association, New Orleans, La.

June 8, 9, 10, 1932—Massachusetts Medical Society, Hotel Statler, Boston.

DISTRICT MEDICAL SOCIETIES

Essex North District Medical Society

January 13, 1932—Kenoza Country Club, Haverhill. 12:30, Dinner. Dr. George H. Bigelow, Commissioner of Health of Massachusetts: "The Relationship Between the General Practitioner and the Department of Public Health, Past, Present and Future."

E. S. BAGNALL, M.D., Secretary.

May 4, 1932—Annual meeting at Lawrence.

Essex South District Medical Society

January 6, 1932, Wednesday—Danvers State Hospital, Hathorne. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Harry Solomon, Boston. Subject: Modern Treatment of Syphilis.

February 3, 1932, Wednesday—Council Meeting, Boston.

February 10, 1932, Wednesday—Hawthorne Hotel, Salem. Dinner 7 P. M. Speakers: Dr. Lincoln F. Sise and Dr. Harry H. Germain. Subject: Selection of the Anesthetic for the Patient and Operation. Dr. Sise to speak from the viewpoint of the Anesthetist, and Dr. Germain from the viewpoint of the Surgeon.

March 2, 1932, Wednesday—Lynn Hospital. Clinic 5 P. M. Dinner 7 P. M. Subject to be announced later. Speaker: Dr. Elmer W. Barron, Boston.

April 6, 1932, Wednesday—Essex Sanatorium, Middleton. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Arthur P. Wakefield, State Department of Health. Subject: 10-Year Tuberculosis Program in the Public Schools.

May 5, 1932, Thursday—Censors' Meeting, Salem Hospital, 3:30 P. M.

May 10, 1932, Tuesday—Annual Meeting. The Tavern, Gloucester. Speaker and subject to be announced later. Ladies invited.

Franklin District Medical Society

Meetings will be held on the second Tuesday of January, March and May at the Weldon, Greenfield, at 11 A. M.

CHARLES MOLINE, Secretary.

Middlesex East District Medical Society

At a meeting of the executive committee the following schedule for the Middlesex East District Medical Society was arranged:

January—At Melrose.

March—At Reading.

May—At Woburn.

All meetings on the second Wednesday of each month unless otherwise announced.

Norfolk District Medical Society

January 26, 1932—Boston Sanatorium, Mattapan. Dr. Timothy J. Murphy. Meeting to be devoted to Diseases of the Chest.

February 23, 1932—Place to be announced. Clinico-Pathological meeting, Dr. Frank S. Cruickshank, Dr. F. B. Mallory, or a representative from his department.

March 29, 1932—Place to be announced. Boston Public Health Meeting. Speakers, Honorable James M. Curley, Dr. Francis X. Mahoney, Dr. Charles Willinsky, Dr. W. H. Griffin.

May, 1932—Annual Meeting, date and place to be announced.

May 5, 1932—Censors' Meeting for examination of candidates. Roxbury Masonic Temple, 171 Warren Street, Roxbury, 4 P. M. Fee $10.00 payable at time of examination. All candidates will have applications in the hands of the secretary one week prior to this date. All candidates from Medical Schools not on approved list of Society must have application complete two weeks prior to date of examination.

F. S. CRUICKSHANK, Secretary.

Norfolk South District Medical Society

January 7—Speaker: William Reid Morrison, M.D. Subject: Stomach Surgery.

February 4—This meeting will be held at the Quincy City Hospital. The program will be furnished by the members of the hospital staff.

March 3—Speaker: Roderick Heffron, M.D. Subject: Pneumonia.

April 7—To be announced later.

May 5—Annual meeting.

The time of all meetings is 12 o'clock noon. All meetings, except February 4, will be held at the Norfolk County Hospital, South Braintree. Censors will meet on May 5 at 11:15 A. M. at the Norfolk County Hospital.

N. R. PILLSBURY, Secretary.

Suffolk District Medical Society

January 27, 1932—General Meeting in Association with the Boston Medical Library. Titles and speakers to be announced later.

February 24, 1932—Clinical Program, the Children's Hospital.

March 30, 1932—Clinical Program, New England Deaconess Hospital.

April 27, 1932—The Annual Meeting, Boston Medical Library. Election of Officers.

The Medical Profession is cordially invited to attend all of these meetings.

GEORGE S. DERBY, M.D., President.*
LELAND S. McKITTRICK, M.D., Secretary.
HILBERT F. DAY, M.D., Boston Medical Library.

Worcester District Medical Society

Wednesday evening, January 13, 1932—Worcester City Hospital, Worcester, Mass. 6:30—Dinner, complimentary by City Hospital. 7:45—Program: To be announced later.

Wednesday evening, February 10, 1932—Worcester State Hospital. 6:30—Dinner, complimentary by the Worcester State Hospital. 7:45—A psychiatric program to be announced later.

Wednesday evening, March 9, 1932—Memorial Hospital, Worcester, Mass. 6:30—Dinner, complimentary by Memorial Hospital. 7:45—A pediatric meeting with subjects to be announced later.

Wednesday evening, April 13, 1932—Grafton State Hospital, North Grafton, Mass. 6:30—Dinner, complimentary by Grafton State Hospital. 7:45—Program to be announced later.

Wednesday afternoon and evening, May 11, 1932—Annual Meeting. Program to be announced later.

ERWIN C. MILLER, Secretary.

*Deceased.

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SYPHILIS OF THE STOMACH

BY JAMES C. MC CANN, M.D.,* AND JOHN J. DUMPHY, M.D.*

A LUETIC lesion of the stomach in tertiary syphilis is unusual and emphasizes the protean character of this disease. Tertiary syphilis shows a selective affinity for the cardiovascular, nervous and osseous systems, but not as a rule for the alimentary canal. Whereas older tradition held that in this system the nasopharynx, mouth and rectum were the only common sites for tertiary lesions, it is undetermined whether, excluding the esophagus, which is rarely affected, the stomach, small bowel, colon or rectum is most frequently involved. Attention was first drawn to syphilis of the stomach by Andral[1] (1834), who reported two cases of syphilitic persons cured of severe stomach symptoms by antiluetic treatment. Chiari (1891)[2] first demonstrated syphilitic lesions of the stomach in a study of the pathology of the disease. In 1922 McNee[3] demonstrated the *Treponema pallidum* in a syphilitic lesion of the stomach.

Prior to 1905 gastric lues was rarely reported by pathologists. Singer and Meyer[4] state that "only a handful have been reported from the morgue". Chiari and Stolper[2] found four syphilitic lesions of the stomach in 329 pathologically demonstrated cases of lues. Symmers[5] found only one luetic gastric ulcer in 314 syphilitic subjects among 4,480 general autopsies. Fitts[6], from studies of southern Negroes, among whom he estimates an incidence of syphilis approximating seventy-five per cent., reports no luetic lesions of the stomach in 500 autopsies; the Hamburg-Eppendorf Hospital none in 10,000 examinations. Turnbull[7], at the London Hospital, found one doubtful case in 3000 autopsies.

Clinicians, on the contrary, claim a higher incidence of gastric syphilis. From 1905 to 1910, cases classified as such from clinical findings alone appeared in the literature. After 1910 more authentic cases, based on adequate roentgenologic and serologic studies, began to accumulate, until at present it is estimated that gastric syphilis occurs once in every one hundred organic lesions of the stomach. Smithies could collect only seventy authentic cases from all sources prior to 1915. He himself reports twenty-six cases from among 7,545 dyspeptics. Hausman[8] cited eight cases seen between 1914 and 1924; Einhorn[9] has reported seven cases; Downes and LeWald[10] treated eight cases in two years; Fitts[6] reported eight cases; Eusterman[11] first published his study of the Mayo Clinic series in 1918; recently he[12] and O'Leary[13] restudied this series, which now numbers eighty-nine cases from among 25,000 syphilitic patients. Luria[14] says that Russian surgeons can recognize the lesion from gross characteristics at the operating table, so extensive is their experience with visceral syphilis. Galloways[15] states that gastric syphilis is common in China. This assertion is borne out by Aoyama's[16] report that four per cent. of his resections of the stomach are necessitated by luetic lesions.

Many pathologists reject these clinical diagnoses as unproved, requiring for a positive diagnosis the demonstration of the *Treponema pallidum* in histologic sections. Only two investigators, Warthin[17] and McNee[3], have fulfilled this requirement. Singer and Dyas[18], however, think that the organism found by McNee was the spirochaete of Vincent's angina. Clinicians, in a dispute which recalls the days when pathologists denied the prevalence of duodenal ulcer, state that histopathologic studies are but rarely possible, since the treatment of gastric syphilis is essentially medical. They claim it is no more necessary to demonstrate the organism in gastric lesions than in syphilitic lesions of other organs. The diagnosis is justified on the basis of clinical history, early or late manifestations of syphilis, positive serologic and roentgenologic studies, and the results of specific treatment.

We present a case of syphilis of the stomach operated upon at this clinic because of the comparative rarity of operated cases. If syphilis occurs, as estimated, in one per cent. of organic lesions of the stomach, and ten per cent. are resected, this case represents one in a thousand organic lesions of the stomach. Also it presents the infrequent complication of progressive pyloric obstruction, which, despite vigorous antiluetic treatment, required surgical intervention.

HISTORY: A woman, aged twenty-five years, was referred to the Clinic March 23, 1930, for treatment of glycosuria, discovered by the family physician a few days previously. In the family history one sister had died of peptic ulcer. The patient had had severe left renal colic fifteen years previously, and passed a calculus. Three years previously she had

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had pleurisy. She had been married seven years. Her husband was living, admitted a luetic infection, and had a positive Wassermann reaction. The patient had one child, which had died five years before, at eleven months of age, from convulsions and a widespread pustular eruption. During that pregnancy the patient had a "shock", and blood examination showed a positive Wassermann reaction. She was given four or five injections of salvarsan.

Four months before admission the patient was troubled with "gas on her stomach" about a half hour after meals, relieved by saleratus. After a month there was a sudden onset of a dragging, aching pain in the mid-epigastrium and "awful vomiting spells". The pain came immediately after meals, without food or alkali relief, and lasted for a few hours or until she vomited. There were no remissions. The vomiting started suddenly so that she could retain nothing but liquids during the day. She felt pain and distress as soon as she lay down at night; then she would vomit up all the food, always a basin full. She recognized food taken early in the day, or even the day before. During the two weeks preceding admission she vomited every night. Her appetite was good and she was hungry all the time. She lost six pounds the first week of the vomiting, and thirty pounds in the three months.

LABORATORY: The urine was negative except for a slight trace of albumin. Sugar never was found. Hemoglobin 60%, red count 3,810,000, white cells 14,200. Wassermann and Kahn tests positive. The patient could not tolerate a tube for gastric analysis.

ROENTGENOGRAM: The stomach was hypotonic and greatly dilated. There was a wedge-shaped narrowing of the entire gastric antrum, with the greatest narrowing at the pylorus. The antrum filled and emptied, but there was little evidence of peristalsis as observed on the screen. Only two of ten serial films showed peristalsis in the antrum. The duodenal bulb had a normal contour but a lessened density. There was a very large residue (about four-fifths of the meal) at a six-hour interval. After belladonna the findings were the same. Interpretation: Findings in the antrum are consistent with a luetic lesion. (Dr. A. E. O'Connell.)

TREATMENT: Medical treatment was carried out by one of us (Dumphy) consisting of intravenous injections of 0.45 grams of neoarsphenamine, three intramuscular injections of bismuth, and potassium iodide up to tolerance. The first two weeks the patient improved considerably, vomited only twice, and took steadily increasing amounts of food, including solids. There was corresponding improvement in her general condition. The third week obstructive vomiting and pain recurred. A second roentgen examination showed marked increase of the narrowing in the antrum, much more dilation of the stomach, and only a trace of the meal had left the stomach at the end of six hours. Her general condition was fairly good, but it was evident that with the progression of obstruction under medical treatment, there should be resort to surgery while the risk was not too great.

Because of the urgent situation, operation was undertaken March 21, 1930 under sodium amytal (fifteen grains intravenously) supplemented by five ounces of ether. Exploration showed a thick band of adhesions extending across the epigastrium from the gall-bladder to the middle of the antrum. The antrum showed a uniform thickening, which extended from just beyond the angle of the stomach to the pylorus. This thickening involved both surfaces and curvatures. Proximally there was a well-defined border between the healthy stomach wall and the diseased antrum. There were no irregular, hard edges as in malignancy, and no local induration or crater formation as with ulcer. The liver and spleen were normal. With the advice of Dr. Michael F. Fallon, the antrum was resected by one of us (McCann) and the continuity of the tract reestablished by the posterior Polya-Balfour type of anastomosis.

After the operation there was slight shock, which was combated by gum acacia and glucose given intravenously. The temperature, the day after operation, was 100° and thereafter it was normal. For ten days the patient occasionally vomited small quantities of food (two to five ounces). This was not due to retention, as shown by lavage. From the seventh to the tenth day there was mild diarrhea. The remainder of the convalescence was uneventful. The patient was discharged in three weeks

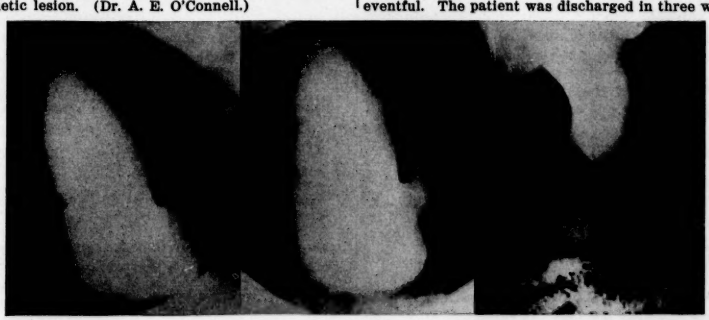

FIG. I. FIG. II. FIG. III.

FIG. I. Roentgenogram taken three months after onset of symptoms. Note hypotonic dilated cardia, with smooth wedge shaped narrowing of antrum, from angle of stomach to pylorus. This is a six hour film showing retention of four-fifths of the meal.

FIG. II. Roentgenogram taken three weeks later after a course of neoarsphenamine, bismuth and iodide. There is increased obstruction, increased dilatation and retention with no evidence of barium passing the pylorus after six hours.

FIG. III. Roentgenogram taken two weeks after operation, showing marked reduction in size of cardia and satisfactory emptying after resection of the diseased antrum.

on a full postoperative stomach diet, without vomiting, and with normal bowel movements. Her weight was ninety-two pounds. Since discharge from the hospital she has had two full courses of neoarsphenamine, bismuth and iodide. She has gained weight steadily to 117 pounds. Her strength and appetite are good and she has no indigestion.

PATHOLOGY: The serosal surface of the specimen showed some adhesions, but no nodules, plaques or other pathologic changes suggestive of carcinoma. The lymph-nodes were normal. The lumen of the unopened specimen was so small that the little finger could hardly be forced through it. The specimen was laid open by cutting the posterior wall lengthwise. This revealed on the inner aspect two protruding submucous masses, the smaller at the lesser curvature near the angle of the stomach, the larger

FIG. IV. Resected antrum showing two protruding submucous nodules with narrow lumen from greater curvature near the angle to lesser curvature at the pylorus.

at the greater curvature near the pylorus. These were covered by intact, smooth, normal, mucous membrane. Between them a narrowed lumen passed from the greater curvature opposite the angle of the stomach, upward and forward to the lesser curvature at the pylorus, making a highly obstructed S-shaped passage. The mucosa of the posterior wall was smooth, with loss of rugae and hemorrhagic areas. On the anterior wall, running upward between the two protruding masses, was a depressed, shallow groove with a thin, smooth mucosa. At the pyloric end of this groove was a small punched-out ulcer with a thin white border. The appearance suggested a serpiginous type of ulcer which had advanced from one site to another, healing as it progressed.

Histologically, the *Treponema pallidum* could not be demonstrated by the Levaditi method of staining. There was no evidence of malignancy. The tissues show changes accepted as evidence of a luetic lesion. The mucosa is unaltered except for lymphocytic infiltration of the tunica propria. The submucosa is four to five times as thick as normal, with marked round cell infiltration, giving it a more cell rich appearance than normal. This infiltration is frequently marked about the vessels, which are increased in number and size, many of them showing an obliterative endarteritis. The muscularis is one to two times its normal thickness. The intermuscular connective tissue contains vessels, some of which have undergone partial or complete obliteration, with moderate round cell infiltration around and within them. The serosa is slightly thickened, but without increased round cells, and with only a few vessels showing obliteration. The changes in the vessels in all these layers range from partial to complete obliteration. This is due to a thickening of the intima from proliferation of the endothelial cells. The lumina of the partially obliterated vessels contain fibrin, occasional lymphocytes, and have a striking absence of red blood cells.

REMARKS

OCCURRENCE: Our patient was a female, aged twenty-five years. The literature indicates that gastric lues occurs twice as frequently in the male as in the female. The average age at the time of diagnosis is thirty-six, the greatest incidence being between twenty and thirty years of age.

SYMPTOMS: The average duration of symptoms is two to eighteen months. Our patient had symptoms for only four months. Eusterman[11, 12] gives as the outstanding symptoms epigastric pain with vomiting, weight loss and anemia. He makes the statement, which applies aptly to this case, that "the progressively severe nature of the clinical course is such that the majority of the patients are in a state of partial or advanced starvation by the time they come under observation, and are partaking only of liquid nourishment, and that in reduced, necessarily frequent, amounts". As with our patient, over sixty per cent. of patients with this lesion have their distress immediately after eating, without relief by food or alkali. Such a history suggests an infiltrating type of lesion. Twenty-five per cent. have an ulcer-like pain-food-ease sequence, though not occurring as regularly as in duodenal ulcer. This suggests an uncomplicated gummatous type of ulcer. A few have complete absence of distress. Our patient vomited because of gross retention early in the course of the disease. Eusterman reports vomiting in eighty-five per cent. of his series, twenty-four per cent. having organic obstruction. The majority of lesions are non-obstructing, with a wide open patulous pylorus, which hastens emptying. We felt no mass, and Einhorn[9], Morgan[19] and Eusterman[11, 12] report the finding of a palpable mass as unusual. Likewise we elicited no history of bleeding. Einhorn[9] and Clarke reported severe hematemesis. Two of the five cases they report also had syphilitic lesions of the liver.

LABORATORY: Our patient had repeated positive Wassermann and Kahn tests. This is

reported in ninety per cent. of cases, although it is not absolutely essential for diagnosis. Einhorn[9] reports a case of gastric tumor with negative Wassermann reaction, which was explored but left unresected, and which afterward was symptomically cured by specific treatment. We were unable to obtain a gastric analysis, but achlorhydria is reported in eighty-five per cent. of cases. Smithies says that the acid values may be normal or only slightly reduced. Eusterman[11, 12] thinks that achlorhydria or subacidity is the rule. Our patient had only a moderate anemia. Eusterman noted anemia in less than twenty per cent. of cases, and called it a secondary type of moderate severity.

ROENTGENOGRAPHIC: The roentgen findings in conjunction with a positive serologic test are the most important factor in establishing the diagnosis. We found a wedge-shaped narrowing of the entire antrum, most marked at the pyloric end. From the literature seventy per cent. of deformities are prepyloric, usually with the pylorus gaping, less frequently with it obstructed. About twenty-two per cent. are median in location, with a typical small, dumbbell like stomach, caused by infiltration of the middle half of the stomach. There is diffuse infiltration of the whole stomach in eight per cent., producing a linitis plastica type of lesion.

TREATMENT: This is primarily medical, but surgery becomes necessary in ten per cent. of cases, usually in the hour-glass or fibrotic obstructing types. Treatment in itself constitutes a therapeutic test which, with a prolonged period of observation, is important in establishing the diagnosis. O'Leary[13] says a favorable therapeutic effect usually manifests itself in two weeks or earlier, and is shown by persistent gain in weight, decrease in anemia, and an intake of larger quantities of food. This is most important in differentiating a luetic lesion and carcinoma. If there is a good response to the first course of treatment, at least three more courses are recommended at intervals of four months. There should be persistent improvement for three years to establish a medical cure. According to O'Leary anatomic improvement of the gastric deformity may be anticipated dependent on the type of gastric lesion. The results are difficult to appraise in the cases with diffuse or extensive gastric involvement of the fibrotic type. In the majority of cases that have not developed fibrosis, he reports a return of free hydrochloric acid. With medical treatment O'Leary's series shows that thirty-seven per cent. are clinically cured, twenty-seven per cent. improved, twenty-nine per cent. unchanged and seven per cent. dead. Bockus[20] reports two ulcerating types of gastric syphilis which perforated while under treatment. Twenty-five per cent. of the Mayo Clinic series were explored and twelve per cent. were resected. In our patient, the specific treatment apparently hastened fibrosis and made surgical intervention necessary for the resultant obstruction.

The surgical treatment of gastric lues is undertaken only for an absolute indication. Eusterman[11, 12] says that plastic procedures, carried out in some of the hour-glass types, and gastro-enterostomies in a few cases gave fair results. After resection the results were uniformly good. Operative procedures other than resection in the early cases are difficult, as one is dealing with thickened scarred tissue and a contracted organ, often involved by adhesions to contiguous structures. Larimore[21] reports a case in which gastro-enterostomy was performed without relief, and resection was carried out subsequently with a good result. Graham[22] states that the results are uniformly remarkably better after resection than after gastro-enterostomy. The results in all cases reported by Eusterman[11, 12] treated medically and surgically, were thirty-six per cent. cured, forty-two per cent. improved (a satisfactory result of seventy-eight per cent.), eleven per cent. benefited, and ten per cent. unimproved. Our patient had medical treatment, developed more obstruction, resection was performed, and she is now in the category of cured cases. Our experience shows that in a syphilitic lesion involving the antrum of the stomach and causing obstruction, vigorous medical treatment may not only fail to relieve the obstruction, but may be associated with increased obstruction. Careful observation must be made during treatment of the progress of symptoms and of food intake and retention. Check-up roentgen examinations should be made at short intervals so that the opportunity for affording surgical relief will not be lost.

PATHOLOGY: A study of the literature reveals the following types of luetic lesions of the stomach: (1) single ulcers, (2) multiple ulcers (gummatous), (3) single nodules, (4) diffuse gummatous nodules, (5) nodulo-ulcerative types, (6) chronic interstitial fibrosis, (7) linitis plastica, and (8) perigastric adhesions and thickening, usually of the antrum. Our case combines perigastric adhesions with nodulo-ulcerative changes and interstitial fibrosis. It parallels Downes and LeWald's[10] description of "localized gummata most frequently in the pars pylorica, with infiltration, ulceration and cicatrization. One portion of the wall may remain infiltrated while another passes on to ulceration or may become cicatrized. Pyloric stenosis may result from the gummatous infiltration or perigastric adhesions." McGlannan[23] states that the extent of the adhesions, compared with the size of the gastric tumor, is greater and the inflammatory reaction in the adjacent tissue is more vascular and edematous in syphilis than in cancer.

Histologically, McNee[3] and Warthin[17] alone claim to have demonstrated the *Treponema pallidum* in the tissues of a gastric lesion. The evidence of syphilis reported by other observers consists of a characteristic obliterative endarteritis and perithelial lymphocytic infiltration with atrophy of the mucous membrane and hypertrophy of the submucosa and muscularis. The obliterative endarteritis and the perithelial lymphocytic infiltration are the most characteristic features of syphilitic tissue. McNeil[24] reports chiefly mononuclear elements in the periarteritis, while Sears[25] reports chiefly lymphocytic infiltration.

SUMMARY

Syphilis of the stomach is uncommon, representing probably one in a hundred organic lesions of the stomach. A resected specimen represents probably one in a thousand organic lesions of the stomach. We present a case of syphilis of the stomach operated upon at this Clinic, with parallel observations from the literature. In our case the lesion involved the antrum of the stomach, causing high-grade obstruction. This increased rapidly, despite vigorous antiluetic treatment, making surgical intervention urgent. The diseased antrum was resected and a posterior Polya-Balfour anastomosis made. The patient had a satisfactory convalescence. The specimen showed changes characteristic of syphilis, chiefly thickening of the submucosa and muscularis, lymphocytic infiltration, and obliterative endarteritis. Since operation, antiluetic treatment has been continued. At the present time, a year after operation, the patient is in excellent condition, has gained weight, has no indigestion and no anemia. The blood still shows a positive Wassermann reaction.

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THE TAKATA-ARA TEST ON SPINAL FLUID*

Results of 500 Cases

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NUMEROUS attempts have been made to obtain a dependable substitute for the Wassermann reaction on cerebrospinal fluid. Many of these substitute reactions have been in the field of colloidal chemistry, and only those which involve a complicated technique have been reasonably successful. A satisfactory test for syphilis of the central nervous system must combine four factors,—

1. practicability,
2. sensitiveness,
3. specificity,
4. clear-cut reactions.

In 1926, two Japanese investigators, Maki Takata and Kiyoshi Ara[1], described a colloidal type of reaction with spinal fluid which they considered not only specific for neurosyphilis, but also of great value in segregating pathologic fluids of various sorts. Since that time this test has been given trial by numerous investigators, particularly in Germany and Italy, and mostly in connection with psychiatric clinics.

Takata and Ara reported 146 cases, 40 of which were definite neurosyphilis. Of their normal cases, 3% gave a falsely positive reaction, while the spinal fluid Wassermann test was negative in all. In the cases of neurosyphilis, they obtained 97.5% positives. They concluded that their reaction was equal to the Wassermann, and perhaps more sensitive in the treated cases. It was of more value as a check on the Wassermann than the other usual laboratory tests.

Shortly after this, Knigge[2] reported the results of 200 tests. He came to the conclusion that it was not specific for lues, and that it was of more value in psychiatric than in general neurological cases. Michejew and Darkschewitsch[3] came to similar conclusions from the results of their series of cases.

Blum[4], on the basis of one series of 200 cases, and another of 170 cases, thought the test to be worthwhile. Münzer[5], who reported 100 cases, considered it valuable in separating luetic from non-luetic fluids.

Jacobsthal and Joel[6] showed a 92.1% agree-

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ment with the clinical diagnosis. Meyer[7] found it to be somewhat less reliable than the Wassermann reaction; the Takata-Ara reaction, however, being of more significance in established cases of neurosyphilis, especially in those being vigorously treated. He found many falsely positive reactions in non-luetic fluids.

There have appeared only two reports in English. Monias[8] compared it favorably with the gold sol reaction and emphasized its ease of performance. Cameron and McCulloch[9] considered it a worthwhile test for the general neurologist or the small laboratory.

A general survey of the literature shows that the test agrees with the clinical diagnosis in from 60 to 100% of the cases. The average is about 90%. Its specificity for neurosyphilis seems to be less than that of the Wassermann reaction. An abnormal reaction is practically never an isolated phenomenon, and, when present, agrees with a majority of the routine laboratory tests. It parallels the gold sol reaction rather than the Wassermann test.

The test is carried out as follows:—

To 1 cc. of spinal fluid, 1 drop of 10% sodium carbonate solution is added. 0.3 cc. of Takata's reagent, freshly made, is then added to the spinal fluid, the whole shaken, and allowed to stand at room temperature.

Takata's reagent is made by the mixture of equal parts of 0.5% mercuric chloride and 0.02% basic fuchsin solution.

Readings are made after 15 minutes, 6 hours, and 24 hours. A normal fluid will give a blue-violet clear reaction, with only minimal flocculation after 24 hours. A luetic fluid gives a definite precipitate, purple in color, with a clear supernatant fluid (Type I). The meningitic reaction (Type II) as described by Takata and Ara is rose red, and clear. There are, in addition, a certain number of mixed reactions in which the precipitate and the supernatant fluid assume a reddish purple color. In our series we have included these cases under the Type II or meningitic classification.

The test can also be carried out with ascending dilutions, and a curve similar to that of the Lange gold sol reaction obtained. This procedure may differentiate the ground types more accurately, especially in the mixed type of reaction. We have confined our observations to the simple method described above.

The reaction is explained on a colloidal basis. The mercuric chloride forms, in the presence of the small amount of alkali, mercuric oxide. The fuchsin present is adsorbed by the crystals of mercuric oxide, giving a blue-violet color to the fluid. The stability of this suspension may be broken up in two ways, according to Takata and Ara, giving the two types of pathologic reaction. In neurosyphilis, the changes in the central nervous system seem to be degenerative, with the production of globulin, whereas in the inflammatory conditions, both albumin and globulin are produced. In the luetic fluids, the presence of the globulin causes a lowering of the stability of the colloid suspension, and the adsorption of the dye is increased, so that the particles become visible, and a heavy precipitate is formed, which in the strongly positive cases sinks to the bottom of the tube, leaving the supernatant fluid colorless.

In fluids where an inflammatory process is at work, the increased albumin content causes an increased stability of the colloid suspension, adsorption is inhibited, and the fluid takes on the pink color of the fuchsin. The presence of blood serum in spinal fluid, in a dilution as low as 1:160, will give a similar reaction.

It has also been noticed that a luetic reaction can be changed into a meningitic by the addition of acid, and that a meningitic reaction can be made normal by adding an excess of alkali. The question naturally arises as to the part played in the reaction by the pH of the spinal fluid.

The substance in the cerebrospinal fluid which causes precipitation has been shown by Cameron and McCulloch[9] to be destroyed by heating. It is also precipitated by alcohol, and by one-half saturated ammonium sulphate.

Röhrs and Kohl-Egger[10] describe their results on filtering various fluids. If a fluid were filtered, and the Takata-Ara reaction tried on the filtrate, the original reaction was obtained. If the test were done first, the fluid filtered, and the filtrate then tested, a luetic fluid was found to react normally. A luetic fluid could also be made to give a normal reaction by first precipitating with sublimate and then filtering. A meningitic fluid could be precipitated with ammonium sulphate and filtered, but would still give a meningitic reaction.

Nicole[11] used known dilutions of albumin and globulin solutions obtained from horse serum to determine the cause of the reaction. He concluded that the redness of the reaction was brought about by the total amount of protein, but that albumin was four times more powerful than globulin in achieving the red color. The precipitation he considered the result of the globulin content, — in fact, precipitation was even limited by the presence of albumin.

We do not attempt to explain the reaction, but present our findings on a clinical basis alone.

Our tests comprise 500 cases taken at random from fluids sent to the spinal fluid laboratory of the Massachusetts General Hospital for routine examination. For purposes of classification, we have separated them into six groups,

I. Cases in which neurosyphilis has been diagnosed

II. Cases in which neurosyphilis is suspected

III. Cases of syphilis with no CNS signs or symptoms
IV. Neurological cases
V. Medical cases
VI. Cases with no definite diagnosis.

We have compared the results of four tests,—the total protein content, the colloidal gold reaction, the spinal fluid Wassermann, and the Takata-Ara reaction.

In the first group, the cases of definite neurosyphilis, we have 100 cases, of which 64 have had or are undergoing active and sufficient treatment. Sixteen cases were under treatment by the Swift-Ellis method, and two cases had received malaria treatment. Twenty-three cases had been given tryparsamid.

The Takata-Ara was positive in 72% of the cases, the spinal fluid Wassermann in 74%. The colloidal gold reaction was more sensitive, with 83% abnormal curves, while the total protein was above 45 mg. in only 47% of the cases. In a comparison of the four tests, which is shown in Table I, the Takata-Ara showed a majority agreement (that is, it agreed with two of the other three tests) in 89% of the fluids, while the spinal fluid Wassermann showed a majority agreement in only 83%.

In the second group, those showing clinical signs pointing to neurosyphilis, there were eleven cases. The Wassermann was positive in four cases, the Takata-Ara positive in six, the colloidal gold reaction abnormal in five, and the total protein above 45 mg. in four.

There were 63 cases of systemic or latent syphilis, of which 48 showed normal spinal fluids. Of the remainder, most of the positives were not in agreement with each other. In the group there were ten fluids with an abnormal gold sol curve, ten with a positive spinal fluid Wassermann, eight with a positive Takata-Ara, and five with an increased total protein content. The Takata-Ara was in majority agreement in 51 of the cases, the spinal fluid Wassermann in 48.

We had 192 cases with a neurological diagnosis, in none of which was there a positive blood Wassermann, or a history of luetic infection. Diagnoses here included all of the common neurological conditions, and many unusual ones. Table II shows in detail which fluids produced pathologic reactions. It will be seen that certain conditions tend to give a positive Takata-Ara reaction, particularly meningitis, brain tumor, multiple sclerosis, polyradiculitis, and cord tumor.

In the neurological cases, there were 75 positive Takata-Ara reactions, of which only 54 showed a majority agreement. Of these positive reactions, 62 were accompanied by a high total protein content. The Takata-Ara was the only positive finding in six cases, while the Wassermann was an isolated positive finding in seven cases. There were seven cases in which the Wassermann was not reported.

There were 73 cases from the medical wards. Of these, two showed a positive spinal fluid Wassermann, with no corroborative evidence for neurosyphilis. In 16 cases there was an ab-

TABLE I

COMPARISON OF TOTAL PROTEIN, COLLOIDAL GOLD, WASSERMANN, AND TAKATA-ARA (MAJORITY AGREEMENT)

Group	I	II	III	IV	V	VI	Total
Number of cases	100	11	63	192	73	61	500
Wassermann in agreement	83	10	48	107	54	36	338
Takata-Ara in agreement	89	9	51	163	60	54	426
Wassermann not reported	0	0	0	7	3	3	13

TABLE II

SUMMARY OF THE NEUROLOGICAL CASES

Diagnosis	No. of Cases	T.-A. Path.	T.-A. Norm.	T. P. High	T. P. Low	Wass. Pos.	Wass. Neg.	Coll. Gold Abnorm.	Coll. Gold Norm.
Meningitis	28	23	5	22	6	3	22	21	5
Epilepsy	25	2	23	5	20	2	22	4	21
Neurosis, etc.	23	1	22	1	22	2	21	4	19
Brain tumor	17	14	3	13	4	1	15	12	5
Multiple neuritis	14	4	10	4	10	0	14	3	11
Multiple sclerosis	14	9	5	3	11	0	13	9	5
Amyat. lat. sclerosis	8	3	5	0	8	2	6	0	8
Parkinsonism	7	1	6	1	6	0	7	0	7
Polyradiculitis	6	6	0	6	0	0	6	6	0
Birth injury	6	2	4	3	3	0	6	1	5
Cord tumor	5	4	1	4	1	0	4	2	3
Comb. system disease	5	0	5	0	5	0	5	2	3
Miscellaneous	34	10	24	11	23	1	33	11	23
Totals	192	79	113	73	119	11	174	75	115

normal Takata-Ara reaction, in eight of which it was accompanied by high total protein content. Of the eight remaining, four were cases of drug poisoning, and one was a case of fracture of the cervical spine. Table III summarizes these medical cases.

tests, and 15.9% were positive to both. Of the remainder, 5.8% showed a positive Wassermann and a negative Takata-Ara; 23.6% of the fluids showed an abnormal Takata-Ara in the presence of a negative spinal fluid Wassermann.

A study of only the fluids which reacted to

TABLE III

SUMMARY OF THE MEDICAL CASES

Diagnosis	No. of Cases	T.-A. Path.	T.-A. Norm.	T. P. High	T. P. Low	Wass. Pos.	Wass. Neg.	Coll. Gold Abnorm.	Coll. Gold Norm.
Gen'lized art. sclerosis	9	3	6	3	6	0	9	3	6
Systemic T. B.	8	1	7	2	6	1	7	3	5
Arthritis	8	0	8	0	8	0	8	1	7
Drug poisoning	5	4	1	0	5	0	5	0	5
Sinusitis	4	1	3	0	4	0	4	0	4
Labyrinthitis	3	1	2	1	2	0	3	1	2
Paget's disease	2	0	2	0	2	0	2	1	1
Duod. ulcer	2	1	1	0	2	0	1	0	2
Pernicious anemia	2	0	2	0	2	0	2	1	1
Hypertens. ht. disease	2	1	1	1	1	0	2	0	2
Miscellaneous	28	4	24	5	22	1	25	4	24
Totals	73	16	57	12	60	2	68	14	59

In eight fluids of this group the Takata-Ara was the only positive finding, while a positive spinal fluid Wassermann was found as an isolated phenomenon in two.

We have included a group of 61 fluids from patients where no definite diagnosis has been made. In these cases we can compare only the laboratory findings. A summary of this group is presented in Table IV. There were six positive spinal fluid Wassermanns, of which three were accompanied by other positive findings. The Takata-Ara was positive in 20 cases, of which 15 were in majority agreement. There was but one fluid where the Takata-Ara was an isolated positive finding.

either the Wassermann or the Takata-Ara is of interest. Table VI shows these results. The spinal fluid Wassermann was positive in 21.6% of our cases. The Takata-Ara was positive in 39.4% of all the cases, 27.8% as type I and 11.6% as type II. The Takata-Ara was the only positive finding in 3.6% of the cases, while a positive Wassermann appeared as an isolated finding in 4%. The Takata-Ara

TABLE IV

SUMMARY OF THE CASES WITH NO DEFINITE DIAGNOSIS

Diagnosis	No. of Cases	T.-A. Path.	T.-A. Norm.	T. P. High	T. P. Low	Wass. Pos.	Wass. Neg.	Coll. Gold Abnorm.	Coll. Gold Norm.
? Brain tumor	7	3	4	3	4	0	7	3	4
Headache	4	1	3	1	3	0	3	1	3
? Multiple sclerosis	4	2	2	2	2	1	3	3	1
No disease	4	0	4	0	4	0	4	0	4
? Encephalitis	4	3	1	2	2	1	3	4	0
? Cord tumor	4	3	1	2	2	0	4	3	1
? Parkinsonism	2	1	1	1	1	0	2	1	1
Ataxia	2	1	1	1	1	0	2	1	1
Hemianopsia	2	1	1	1	1	0	2	0	2
Diplopia	2	1	1	1	1	2	0	1	1
? Myasthenia gravis	2	0	2	0	2	1	1	0	2
? Lat. sinus thrombosis	2	0	2	0	2	0	2	0	2
Miscellaneous	22	6	16	2	20	1	19	6	16
Totals	61	22	39	16	45	6	52	23	38

showed majority agreement in 29% of all the cases, and the Wassermann showed majority agreement in 15.4%.

Table V gives a résumé of the 500 cases of our series. It also compares the Takata-Ara with the Wassermann directly. From this we see that 52.2% of our cases were negative to both

We can deduce from these facts, therefore, that neither the Takata-Ara reaction nor the spinal fluid Wassermann is reliable as an isolated phenomenon. The Takata-Ara reaction is not so specific for neurosyphilis as the Wassermann. It seems to be somewhat more sensitive than the Wassermann in following the

progress of treated neurosyphilis. The Takata-Ara reaction is parallel with the colloidal gold reaction of Lange, but is less sensitive.

The Takata-Ara reaction is unreliable as a test for neurosyphilis in cases where the total protein content is increased. We saw very few fluids with a total protein content of over 45 mg.% which did not give an abnormal Takata-Ara reaction. That the reaction is not due alone to the increased total protein is brought out by the fact that in fluids from cases of neurosyphilis and multiple sclerosis, in which the total protein is usually low, consistent luetic reactions are obtained.

The presence of blood, living bacteria, or previously administered anti-bacterial serum will upset the reaction. The reaction does not seem to be affected by the length of time which has elapsed following withdrawal of the fluid.

The advantages of the test lie in the facts that it is easy to perform, and not difficult to interpret when used with clinical findings and routine laboratory procedures. It can be carried out in the laboratory of the practicing physician or neurologist, without complicated apparatus or elaborately prepared solutions. It eliminates all but 24 hours of the time usually required for a report from a central laboratory, and in a large majority of cases will give a dependable reading within six hours. Furthermore, there is no possibility of mixing fluids or reports.

In the hospital laboratory, it adds nothing to the facts brought out by the colloidal gold curve, and the estimation of total protein. It loses value by the fact that it requires 1 cc. of spinal fluid, ten times as much as is needed for the colloidal gold reaction.

TABLE V

COMPARISON OF THE WASSERMANN AND TAKATA-ARA

Group	I	II	III	IV	V	VI	Total
Number of cases	100	11	63	192	73	61	500
Wass. +, T.-A. type I	58	4	2	1	0	1	66
Wass. +, T.-A. type II	6	0	1	4	0	2	13
Wass. +, T.-A. normal	10	0	7	7	2	3	29
Wass. —, T.-A. type I	7	1	4	35	10	16	73
Wass. —, T.-A. type II	1	1	1	35	6	1	45
Wass. —, T.-A. normal	18	5	48	103	52	35	261
Wass. not reported	0	0	0	7	3	3	13

TABLE VI

COMPARISON OF POSITIVE WASSERMANN AND ABNORMAL TAKATA-ARA REACTIONS

Group I		II		III		IV		V		VI		Total	
T.-A.	Wass.	T.-A.	Wass.	T.-A.	Wass.	T.-A.	Wass.	T.-A.	Wass.	T.-A.	Wass.	T.-A.	Wass.
Positive reactions													
72	74	6	4	8	10	75	12	16	2	20	6	197	108
Majority agreement													
64	65	4	4	2	2	54	3	6	0	15	3	145	77
Isolated positive reaction													
1	4	1	0	1	4	6	7	8	2	1	3	18	20
Isolated negative reaction													
1	3	0	0	1	0	0	48	0	6	0	12	2	69

SUMMARY

1. The Takata-Ara reaction cannot replace the spinal fluid Wassermann in the diagnosis of neurosyphilis.

2. The reaction is of more value as a corroborative test than as a diagnostic procedure.

3. The Takata-Ara reaction provides an easy, a rapid, and a reasonably accurate test for the detection of abnormal spinal fluids.

4. The ease of performance and the simplicity of interpretation lend themselves to the use of the small laboratory or the practicing physician or neurologist.

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UNUSUAL RENAL ANOMALIES: CASES OF RENAL AGENESIS, UNILATERAL CONGENITAL RENAL HYPOPLASIA AND CROSSED RENAL DYSTOPIA*

BY E. R. MINTZ, M.D.,† AND J. D. STEWART, M.D.†

RENAL agenesis and congenital renal hypoplasia are comparatively uncommon pathologic findings, but, nevertheless, their existence is not to be ignored by the clinician. Anders[1] in 92,690 autopsies found renal agenesis, or congenital solitary kidney, in one out of 1817 cases. Campbell[2] in a review of 13,000 autopsies at Bellevue Hospital in New York, found the condition in one in 1444 cases. In 6,000 postmortem examinations at the Massachusetts General Hospital six instances of renal agenesis have been encountered. Most authors agree that the left kidney is more frequently lacking than the right. The incidence is about the same in male and female.

It is difficult to compute the incidence of unilateral congenital renal hypoplasia, sometimes termed fetal or lobulated kidney, for it may be difficult in the particular instance to know whether the hypoplasia is congenital or acquired. According to Kaufmann[3], however, the condition is "very rare". Watson and Cunningham[4] comment on the rarity of the anomaly and emphasize the fact that associated abnormalities of the renal blood vessels may make operation on the kidney hazardous.

In unilateral renal agenesis and hypoplasia the single effective kidney is somewhat more susceptible to disease than is the normal, paired kidney. Of the 422 instances of renal agenesis collected by Fortune[5], lesions in the solitary kidney existed in 22.6 per cent., whereas, in general, autopsy findings include renal disease in 15 per cent. Chronic nephritis, lithiasis, tumor, hydronephrosis, pyonephrosis and renal tuberculosis are some of the diseases most often afflicting the congenital solitary kidney. Eisendrath described 16 cases in which ureteral obstruction in solitary kidney resulted in anuria (Hennessey[6]).

It goes without saying that no operative procedure on a kidney should be contemplated until the functional value of the opposite kidney has been determined. Hence, the possibility that renal agenesis or hypoplasia may be present should be considered before surgical treatment of a diseased kidney is undertaken. Enlargement of the contralateral kidney, compensatory in nature, and non-visualization of the renal pelvis on the affected side after the use of intravenous pyelographic media may be due to either renal agenesis or unilateral renal hypoplasia. In renal aplasia the ureteral orifice is usually lacking on the affected side and the trigone is incomplete; or the normal orifice may be represented by a mere dimple. The value of cystoscopic examination as a diagnostic measure is obvious.

Crossed renal dystopia is a rare developmental anomaly. Of the two forms, crossed dystopia with fusion and crossed dystopia without fusion, the former is much less uncommon, and of 70 instances collected by Papin[7] in 1910, in 60 the kidneys were fused. Kretschmer[8], in a review of the literature in 1925, found 90 instances of crossed dystopia with fusion, or unilateral fused kidney, and described a case of his own. With the additions since then, the total now approaches 100 reported instances of crossed dystopia with fusion. The incidence of the condition as encountered in autopsy series is variously computed. Stewart and Lodge found one example in 6500 autopsies, Henry Morris one in 15,908 autopsies, Boody one in 500 autopsies, while Naumann in 5088 autopsies encountered the condition only once (Kretschmer[8]). Males are somewhat more often affected.

The kidneys may be fused in various positions, but usually the crossed kidney is adherent to the lower pole of the other kidney and lies anteriorly. Lateral fusion, as in Case III, is a less common arrangement and gives rise to the "discoid kidney". The ureters in crossed dystopia open normally in the bladder. Huntington[9] in a clear discussion of the embryological development of renal malformations attributes etiologic significance to the close apposition of the two renal buds during the early changes in the metanephric tissue, whereby fusion and subsequent faulty migration of one, or, more rarely, of both kidneys occurs.

Pain, hematuria and palpable tumors are the clinical features of the condition most often emphasized in the reported cases. Inadequate drainage and faulty vascularization are probably the agents which lead to the production of symptoms by predisposing the kidney to pyogenic infection, tuberculosis, stone formation, cystic deterioration and nephritis. Symptoms are most often manifested in the third decade of life and often lead to surgical treatment, it may be under a mistaken diagnosis. The fused renal structure has occasionally been extirpated, with death ensuing in three to thirteen days from anuria.

Three cases representing these anomalies are hereby reported from the Massachusetts General Hospital.

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CASE I:—E. M., a Finnish schoolgirl, fifteen years old, entered the hospital through the Emergency Ward, complaining of pain in the right flank and loin of two weeks' duration. The past history was negative.

Five weeks before admission the patient was seized with a sharp lancinating pain in the right lower quadrant of the abdomen. The pain gradually died away, but soon recurred and persisted in a less severe degree until the following day. The family physician was called and thought the patient had either acute appendicitis or right renal colic. After one week in bed in another hospital, the patient was still having pain in the lower abdomen on the right and appendectomy was performed. The appendix was found to be normal. An uneventful convalescence was made and fifteen days later the patient was discharged from the hospital.

Three days later, two weeks before admission to this hospital, the patient noticed a dull, non-radiating pain in the right loin, unaccompanied by urinary

FIGURE 1. Congenital hypoplastic kidney. Case I.

symptoms. Her physician was again called, made a diagnosis of right-sided renal calculus and referred the patient to the hospital for study. No frequency, pyuria or hematuria had been noticed; the bowels were moving daily; there had been no vomiting or chills.

On admission the patient's general condition was found to be excellent. The pharyngeal mucosa was somewhat injected; the tonsils had been removed. No abnormality in the chest was discovered; the blood pressure was 130 over 85. The abdomen was not distended; the liver and spleen could not be felt. In the right flank a slightly tender mass could be felt which descended with inspiration and was taken to be a kidney of normal size. The left kidney could not be felt.

The urine at admission was acid, the specific gravity 1.020; the tests for albumin and sugar were negative; the sediment contained an occasional white blood cell. Subsequent examinations yielded similar findings. The erythrocyte count was 4,800,000, the hemoglobin 75 per cent.; the renal function test showed 20 per cent. excretion of the phenol-sulphonephthalein in the first hour. The blood non-protein nitrogen was 29 mg. per 100 cc.

At cystoscopic examination on the day of admission the bladder mucosa appeared normal. Pyelography showed no abnormality in the shadow of the right pelvis and ureter, but on the left filling was incomplete. The left ureteral catheter met with an obstruction 20 cm. from the bladder and no flow of urine was obtained. Pyeloureterography after intravenous administration of uroselectan confirmed the above findings. Two subsequent cystoscopic examinations yielded no additional evidence.

One week after admission to the hospital operation was performed, the left kidney and upper three-quarters of the ureter being removed. Convalescence was uneventful except for a mild pharyngitis, and the patient was discharged nineteen days after operation free from pain.

The final diagnosis was congenital fetal kidney, left, stricture of the left ureter and left hydroureter.

The pathologist's report on the specimen removed at operation was as follows: The specimen consists of a ureter 16 cm. long, attached to the proximal end of which are many small, fluctuant, round cysts, 1 to 2.5 cm. in diameter, clustered in a mass about 4 x 3 x 2 cm. in size. No kidney tissue is recognized. The lower portion of the ureter appears normal in size, but abruptly tapers to almost a fibrous band. Immediately above the stricture and for a distance of 10 cm. the ureter is dilated and tortuous. Tenacious adhesions are seen between the loops. The average diameter of the ureter is 2.5 cm.

CASE II:—V. S., a Russian laborer, aged 38 years, was admitted to the hospital with complaint of abdominal pain of six weeks' duration.

The past history contained no points of particular interest. Six weeks before admission the patient was seized with a sharp pain in the right side of the abdomen at the level of the umbilicus. The pain was constant, was increased by eating, and was relieved by defecation; it was most severe at night. On one occasion it radiated to the right testicle. The patient entered another hospital, where he was treated for two weeks with some relief of his symptoms. Two days after discharge, however, the pain in the right flank recurred and persisted.

On the evening before admission the pain became severe and was accompanied by nausea and vomiting. For an indefinite period there had been urinary frequency with voidings three or four times at night and seven to ten times during the day. There were no gastro-intestinal or cardio-respiratory symptoms, and there was no known loss of weight.

At the admission examination the patient was found to be thin, poorly nourished and in obvious distress. No abnormality in the chest was discovered. The abdomen was moderately distended; there was tenderness in the right upper quadrant and rather marked right costovertebral tenderness. A suggestion of a mass was made out in the epigastrium above the umbilicus. The blood pressure was not elevated.

Laboratory examination disclosed the erythrocyte count to be 2,400,000, the hemoglobin 50 per cent., the leukocyte count 7,400 and the differential normal. The blood Wassermann test was negative. The urine had a specific gravity of 1.008 and contained an occasional leukocyte per field, but no casts were found. Tests for albumin and sugar were negative. Stool specimens were negative to the guaiac test, but several specimens of vomitus gave a strongly positive guaiac test. The blood non-protein nitrogen was 71 mg. per 100 cc., the chlorides 621 mg. per 100 c.c. The temperature was normal, the pulse rate 70.

On the day after admission the patient vomited blood-tinged material; the vomiting continued and at one time two ounces of almost pure blood was raised. During the following six days the patient

did not urinate, and no urine could be obtained from the bladder by catheter despite liberal parenteral administration of glucose and saline solution. The blood non-protein nitrogen rose to 125 mg.; the chloride determination was 605 mg. The patient then began to pass large quantities of pale, hazy urine, and the blood non-protein nitrogen dropped to 100 mg. The occasional vomiting of small amounts of guaiac-positive fluid continued, although the abdominal pain and tenderness disappeared.

On the tenth day after admission a small barium meal was taken and showed deformity of the pyloric antrum, considered as due to carcinoma. On the nineteenth day after admission blood transfusion was performed, and was followed by exploratory laparotomy. A large, cancerous mass was found involving the lesser curvature of the stomach, too extensive to remove. After operation the patient gradually failed, the pulse rate rose, the abdomen became tender and distended, and on the ninth day he died.

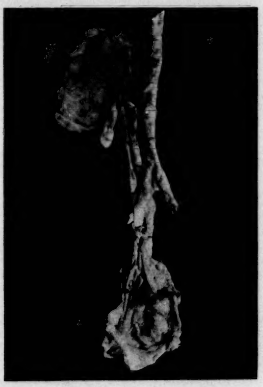

FIGURE 2. Congenital solitary kidney. Case II.

The necropsy findings were adenocarcinoma of the stomach with metastases to the wall of the right ureter, congenital absence of the left kidney and ureter, and general peritonitis. The left kidney, the entire left ureter and the left renal artery and vein were absent, and there was no ureteral orifice in the left half of the bladder. The right kidney was in the normal position and weighed 250 grams. An anomalous superior polar artery, about one-fifth the diameter of the renal artery, sprang from the renal artery near its aortic origin. The renal pelvis was enlarged and dilated. The right ureter was distended throughout its abdominal portion, down to a point 10 cm. above the bladder, where a thin, smooth, annular valve protruded into the lumen for a distance of 3 cm. Just proximal to the vesical end of the ureter, the ureteral wall was involved in a small, carcinomatous mass, which narrowed its lumen without completely occluding it.

CASE III:—T. P. D., a stolid, uncommunicative lad of seventeen years, came into the hospital with the complaint of vomiting. The only note of interest in the past history concerned an operation which the patient underwent at another hospital when eight months old, presumably for acute intussusception. Three days before admission the patient noticed loss of appetite but felt no particular discomfort. Two days before admission he was seized with a shaking chill and was put to bed. At five o'clock in the afternoon vomiting occurred and vomiting and retching were frequent thereafter.

During the day before admission nothing taken by mouth could be kept down. On close questioning the patient stated he had mild discomfort in the central part of his abdomen on the day before admission, but he refused to describe this as pain.

On the evening before entry a physician was called in but was unable to make a diagnosis; he recommended that the patient be brought to the hospital as the trouble might be acute appendicitis. The patient's bowels had moved normally until two days before admission, and there had been no diarrhea.

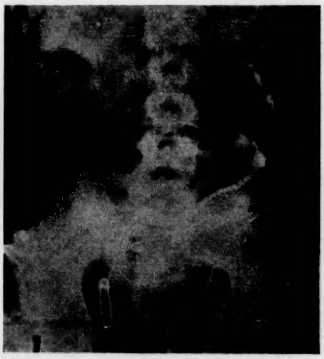

FIGURE 3. Unilateral fused kidney. Case III.

No urinary symptoms had been noticed during the present illness or previously. Following the onset of vomiting, the patient's throat had become sore and he developed a mild, dry cough.

Physical examination: A strong, well-nourished, well-developed youth, evincing some signs of mental dullness. The tongue was moderately coated; the tonsils and posterior pharynx were congested and dull red, and a mucopurulent discharge extended down on the posterior pharyngeal wall. No abnormality was discovered in the chest; the abdomen was moderately distended and tympanitic. There was a short, paramedian scar to the right of the umbilicus. Slight tenderness over a distended cecum extended upward in the right flank to the vicinity of a firm, somewhat irregular mass about the size of a man's doubled fist. The mass was best felt between the right hand on the abdominal wall and the left hand posteriorly, and it did not seem to move with inspiration. The right kidney could not be felt apart from the mass, nor could the kidney be felt on the left side. The examination was otherwise negative.

On admission the patient's rectal temperature was 102.6 degrees, the pulse rate was 130, the leukocyte count 20,000. The urine contained a slight trace of albumin, an occasional hyalin cast and an occasional leukocyte per field.

In view of the fact that acute appendicitis could not be definitely excluded from the list of possibilities, operation was advised. It was difficult to account for the mass in the right flank, and the subjective evidence available was deemed unreliable. At operation the appendix appeared to be normal; the cecum and ascending colon were distended, and in the mesentery of the terminal ileum were dull red

lymph nodes up to 2 centimeters in diameter. The mass in the right flank resolved itself on examination into an anomalous mass of renal tissue, the right kidney being in lateral apposition with, and firmly adherent to, a second and similar body overlying it. The mass moved freely with diaphragmatic excursion; its surface was smooth and gave no suggestion of invasion of the surrounding tissues. Careful efforts to palpate the left kidney in the left renal fossa were fruitless. The rest of the viscera were normal so far as could be determined. The appendix was removed.

Following an accession of fever on the first day after operation, the patient's temperature became normal and convalescence progressed uneventfully. No abnormality in the urine could be detected at subsequent examinations and no urinary symptoms were noticed.

On the thirteenth day after operation pyelographic studies were made by giving uroselectan intravenously. Cystoscopic examination and catheterization of the ureters confirmed the findings. The bladder and ureteral orifices were normal; the left ureter crossed the midline at the sacral promontory to join its pelvis, which lay somewhat below and medial to the pelvis of the right kidney. The outline of the pelvis was not abnormal, but both were directed laterally instead of toward the midline.

It is questionable whether the renal anomaly present, unilateral fused kidney, or crossed dystopia with fusion, had any part in producing the patient's symptoms.

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ORGANIZED MEDICINE'S INTEREST IN A HEALTH INSURANCE PLAN FOR SMALL WAGE EARNERS*

BY PHILIP KING BROWN, M.D.†

ORGANIZED medicine refers to city, county, state and national medical societies which are, or should be affiliated, hospitals, open or closed, and teaching medical departments of universities as well as independent medical schools. No appreciable opposition to health insurance has come from any of these sources. These various organizations are engaged in "studying the problem" or are "letting nature take its course". The interest of the teaching group who care for thousands of the middle class as well as the very poor, at enormous expense, solely for the so-called "teaching material", is easily defined. It is well known that but a small percentage of the patients they handle present conditions which make valuable demonstrations to students or offer problems, the working out of which gives the institution creditable standing. It seems as if this end could be more economically reached in some other way than by maintaining huge and costly clinics. The fact that in combing over patients for the few who are needed for teaching and research, a great deal of careless work is done, makes it all the more imperative that a method be found for the sick public and more beneficial to the teaching institutions than the present system. These teaching groups have a most important place in any health insurance plan, for they must set the standards, train the workers, and help to solve the more difficult problems of medicine. To spare them the expense of operating hospitals and clinics, in return for this, would be to their interest and only a reasonable return for the rôle they play. Of course, there are individual members of this group who use teaching institutions and hospitals for their own selfish ends; they expect the public to pay vast sums to build and endow such hospitals so that they may use the machinery for earning large sums from private patients who seek their aid because of the reputation built up for them by the school. The day of that small group is waning and the school of the future will not be exploited as most all of them have been, at one time or another, in the past.

The hospital of today, whatever its reason for coming into being, is so seriously handicapped by the problem of keeping its beds full and collecting enough money from its clients and the generous public to keep going, that it must welcome any plan to make a more than 75% use of its facilities, which is a fair average now for most hospitals. (See Community Chest Survey of San Francisco Hospitals 50% to 88%.) Even then one would like to know how much is the percentage of loss from uncollectible bills.

The two groups whose interests are in need of reconciliation, which promises to be a difficult task, are the doctors and the great mass of people whose incomes are too small to meet the cost of serious illness in a satisfactory way. The doctors are individualists, united only loosely in their organizations for intellectual purposes. There is no semblance of "combination in restraint of trade", more the pity, for this very absence and aloofness has enabled the cults, well organized and wholly commercial, to make great inroads into the field of care of the sick. The doctors wish, as individualists, to stand on their

*Delivered before the section on Industrial Medicine of the San Francisco County Medical Society. While the references in the paper are occasionally local, they are applicable to medical conditions generally.

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ancient prerogatives and do exactly as they please, brooking no interference. They talk loudly against any disturbing of the relation of patient to the doctor of his choice, and pay little or no attention to the problem presented to the patient as to how he will meet the bills for medical care. The selfish ones decry the interference of all public health activities and the growth of free clinics. The mass of small wage earners are in an increasingly bad way. Drugs, nursing, hospital care, laboratory work, and specialists' fees are all increasing in cost frequently out of proportion to value rendered. The public demands, and the doctors advise, much investigation that is expensive and frequently unnecessary. Both parties to the abuse need to do more thinking. The lure of the mystic x-ray has been played up till its possibilities seem limitless to the uninitiated and it frequently saves the doctor an exercise of his ability by pointing out what he could easily deduce from an activation of his trained faculties. The patient frequently asks the doctor to "turn the x-ray on me and tell me what's the matter," as if the possession of this magic machine was all that was required in the successful diagnosis of disease. One wonders whether the patient plans his course so that, once armed with a diagnosis, he may go to the largest department drug store in the neighborhood and read the labels on bottles of bright-colored fluids or pink pills till one that promises relief for his ailment is found; or, perhaps, take the drug clerk into his confidence and ask his advice about a remedy for what he has been told is the matter with him. Fortunately, the *Pure Food and Drug Act* saves the patient all that a wisely paternal government can, without too much interference with trade, and he gets a remedy which doesn't promise miracles and which may bring some benefit. It is still the layman's idea that a bottle of medicine is a necessary accompaniment of a diagnosis. Verily the art of bandaging was ruined when the gauze bandage came into use and "Bandaging Day" at the old Massachusetts General Hospital is as historical a rite as Ether Day has been in the same institution. The art of therapy is still a fertile field for research and education to doctor and layman alike. The art of diagnosis is threatened by the science of radiography and biochemistry.

The period since the war has been marked by two distinct developments in medicine: first, the efficiency and the costs of medical care have increased enormously, due largely to the far greater use made of more exact methods of diagnosis through the x-ray and clinical laboratories; secondly specialism is extending to a dangerous and wholly unwarranted degree, and holds today a false position in the minds of the laity and in the relative remuneration for services rendered. Glaring illustrations are endless; one will suffice. One of the leading specialists in lung tuberculosis in this State, meriting all that can be said in favor of specialists, is authority for the statement that during several years of his connection with a large private sanatorium for the treatment of pulmonary tuberculosis, one-quarter of the patients admitted had undergone, within one year, operations under a general anesthetic, mostly for the removal of tonsils. Unquestionably the re-activation or increase in the tuberculosis was due to the anesthetic in the vast majority of these cases. The indiscriminate removal of tonsils as the possible offenders in what proved later to be a more deeply seated condition is the result of erroneously attaching importance to the opinion of so-called specialists.

These developments — greater thoroughness and therefore, increased cost of medical investigation, and the faith in specialism—are working more and more hardships on the small wage earner. At the beginning of this period certain community surveys of sickness made by the Metropolitan Life Insurance Company indicated that from 28 to 40 per cent. of the sick in two large eastern cities got no medical attention from doctor, nurse, or hospital, when illness disabled them from work. This situation has changed greatly over most of the country, owing to the growth of, and improvement in, our humane and medical institutions. Out of the present state of affairs, where the rich may choose wisely or badly and pay for what pleases them, and the poor have the support in public free hospitals, in most communities, of the best that medicine can offer them, what can we say of the type of care given the small wage earner? The advertisement of an x-ray diagnosis thrown in with "adjustments" has an irresistible appeal. The Pure Food and Drug bill has hurt the patent medicine business, and to some extent protects the small wage earner. A recent survey in Illinois showed that 85% of the sick resorted to aid outside the regular school of medicine. The raising of standards of medicine in our profession has made great room for the cultists, and this state, particularly the southern part, represents plainly what abuses and inroads organized cultists can develop in institutions founded on ideals with which these individuals have never come in contact. The drugless cults may, and do, operate in some of our county hospitals, and in one institution privately endowed they have obtained, by some political manipulation, the right to protection of the law in doing even surgery, which they claim they are opposed to in the regular school's practice of medicine. Under the present system we are abandoning this 85% of the small wage earners to the exploitation of quacks, cultists, bigots, and healers.

In the earliest record of the State of California there are evidences of organized efforts to secure adequate medical care for the hordes who flocked to the gold fields from all over the world. Our French and German Argonauts promptly

banded themselves together to form the French and German General Benevolent Societies in 1854 and 1855. These societies were not for relief purposes alone but were particularly developed to provide medical help in a country where doctors were too few. Both of these organizations still live. Lodges and societies of all sorts began to have their doctors. Within ten years the building of the Central Pacific Railroad was begun and shortly it became necessary to provide medical care for the employees; "hospital dues" of 50 cents a month collected from the pay check was the beginning of the present hospital system. Our mines, fisheries, lumber camps and large industries have followed on with varying plans for sickness relief, all compulsory. It is safe to say that California owes most of its important development to the possibilities created by industrial medicine. It is not strange that private enterprise should seek to capitalize an idea as popular and successful as have been many of these industrial health insurance plans and a dozen or more such commercial health organizations have sprung up in the past twenty years—most of them in the past ten years. Handled as money-making ventures, they have been organized, as a rule, by promoters aided by doctors who had, possibly, more altruism than wit. Without exception these organizations have suffered stormy and brief careers. The idea of distributing the costs on an insurance plan is good, but when commercialized by a business group, there is danger that it cannot maintain the standards it should and it finally fails through the greed of its organizers.

The objection to private organization of health insurance without medical supervision is the fixing of the salaries of the doctors by a lay board. Although with less than 10,000 members the French General Benevolent Society made a profit in one recent year of over $30,000, it pays its medical staff unwarrantedly small salaries. These men must look for fees, in consequence, from practice that comes to them through their hospital connections in order that they may be at all adequately compensated for the work done for the Society's members. In the meantime the financial standing of these societies that have stood the test of decades has been stabilized greatly by being recipients of large sums by will from deceased members on account of the benevolent aspect of the work, for which in part they were originally organized. That they have survived at all is indicative of the soundness of the principle, although for the sake of business which they owe to the medical profession, their methods of administration should be changed decidedly.

The industrial groups operating health insurance have rarely included the families of employees, and in consequence the dependent ones in the families must accept what they can afford in sickness emergency. Too often this is not what would be regarded as adequate, judged by the standards of our first-class clinics and city hospitals.

The state has tried to remedy the matter by a movement for a state-wide health insurance plan. This was ten years ago. The law was a good one, as such laws go, and yet its approach was exceedingly tactlessly handled. It was born of propaganda, bred and spread by a man of Russian name. It developed without any organized effort to win over the leaders in the medical profession, and when its passage was threatened by the support given the enabling act, the League for the Conservation of Public Health was formed to defeat all such legislation and take over the leadership in the state of all matters pertaining to the welfare of the profession and public health education and development. Too many of the leaders of the profession knew of the dissatisfaction among the doctors where state health insurance had been tried, and a low grade of work often done. Sir James Mackenzie is authority for the statement that 80% of the illnesses reported in England under the Health Insurance Act were not named in the physicians' reports as definite diagnosis, but were enumerations of outstanding symptoms. After more than ten years of struggle the health insurance law in England has been amended to work fairly satisfactorily. Had the medical profession supported and not fought the law in the beginning, it might have been framed originally to be what it is today. The League for the Conservation of Public Health has continued a certain amount of educational work in the hands of a few of its faithful followers, but the influence in holding the profession together and giving it a strong point of unity needs a very decided revival.

I am not a believer that state methods are ever better than the people who are responsible for their execution. Our profession furnishes notoriously poor business men and executives and the instances of prominent professional men engaging officially in state politics are rare. As a profession we are not well organized and therefore we have been exploited by national, state and municipal laws and regulations that are often unjust. The narcotic tax is a small example of an unjust tax. The method of prohibition administration as applied to physicians is an example of stupidly conceived regulation. Exceptions have to be made and, in all fairness to the men who must administer the laws, they seem to exercise humane discretion in given cases where the regulation, if strictly enforced, might work critical hardship. If whiskey be valuable at all in a prolonged critical state, the 16 ounces allowed in ten days is a joke.

The fact remains, however, that legislation is bound to take the place of custom and as time goes on, our profession is either going to assume leadership in its own affairs, or continue the

present policy of indifference or unorganized protest. Hence the question before us now is have we an interest in possible health insurance legislation? If we have, shall we organize to fight it as a whole, in any form, or shall we read and study the handwriting on the wall and make it something that will profit us as well as the insured? At the dedication of this building to the service of medicine, Chester Rowell warned us to look into all medical legislation and to mold it and direct it to our liking or we would find ourselves in England's position, fighting for decades to get what we might have had at the start and what Germany has secured after fifty years of protest.

An example of the development of legislation in replacing custom is the care of the sick poor in county hospitals, endowed beds and clinics. It has become one of the generally accepted conditions in modern American communities that the regular profession of medicine should underwrite the community's care of its sick and injured dependents. Every department of the government, from the United States Army and the Public Health Service down to the smallest town council, has always looked to representatives of our profession rather than to chiropractors, osteopaths, or faith healers, to safeguard and maintain the highest possible standards of health, although it is true that in Los Angeles and certain of its environments cultists of various types have influenced local government and secured entrée to public and endowed institutions, where they have attempted the practice of medicine along lines not always confined to the teachings of their schools of medicine. Here in San Francisco the large clinics supported by the universities, the Community Chest and private benevolence, are organized and directed by members of the regular profession, who serve without remuneration. Our city hospital, with its 800 beds, is staffed by men whose salaries as teachers are paid by universities. It is reasonable to estimate this service to the community at an extremely nominal price to be a saving to the local government of a million dollars a year. This service, gladly given in return for teaching privileges, sets a high standard of care. This quite frequently is the reason that the thrifty wage earner, desiring relief in emergency or because of the need of operative correction of chronic defects, seeks the unremunerated aid of the able surgeons of our city hospital. A social service department (wrongly named) is used to prevent abuse of this sort, and where it has been detected later on, attempts are made to collect a fixed sum a day for this service; in Los Angeles this sum is fixed at $3.50 a day, in Stockton at $2.00, in our own hospital $3.75. That this is a steadily growing condition is quite obvious, and the experience of Stockton is illuminating. The head of its hospital for eighteen years, appointed by the town supervisors to serve at their pleasure, is a very competent surgeon who has been paid a reasonable salary for his full-time services, for part of this eighteen-year period. He did his work satisfactorily, and evidently skillfully, for the county residents, other than indigents, began to go to the hospital for his services, for which he received no remuneration but the salary. The County Medical Society objected; meetings were held; it became a political issue; outside doctors from Los Angeles and the Bay region were called on for help. At the election which followed, the medical society was defeated 3 to 1 on this, the only issue, and the supervisors now permit any resident of the county who will pay $2.00 a day to have the hospital care, for the support of which they are taxed, on the same conditions, share and share alike, as the indigents. If they cannot afford the $2.00 charge, but could pay $1.00, the county admits them without charge, holding that in those conditions the money is needed at home. If the patient can easily afford more than the $2.00, he is charged, nevertheless, only the $2.00, for if he were charged more, it is felt that he would demand more service than the hospital could afford to give. The executive of the hospital resigned a year ago, but his services were so generally satisfactory that the supervisors reappointed him on a part-time basis, at a somewhat less salary, and he carries on a private practice during his own time. The experiment is very interesting and illuminating to any one who has followed the situation in Los Angeles. A $10,000,000 hospital is being built from the plans passed by a board of architects and as carefully and critically studied as any hospital plans ever were. The hospital, when finished, should represent the last word in every detail. The original estimate, however, will be surpassed by 50 to 60 per cent. What will be the normal reaction of the taxpayers, the eighty to ninety per cent. of the population who are neither comfortably situated nor paupers? It will be very obvious to them that the dependent class gets better care than they do in full pay private hospitals, and for operative and specialists' work particularly, they are going to apply at the door of this hospital. Los Angeles has had this problem to deal with and its 300,000 Mexican population and 40,000-60,000 Negroes present an economic situation which is sure to cause trouble. These people are not taxpayers in proportion to equal numbers of the laboring class and they are an enormous burden on the community, and yet they get the very best medical and surgical care that can be furnished, in the most up-to-date hospital in the country. To meet the growing demand for care from small wage earners, the supervisors plan a charge of $3.50 a day from all who can pay. There is no record of the physicians and surgeons who give this service being paid anything for it, as they

are in Stockton, and there is bound to be a constant struggle to keep wage earners out of the hospital, particularly if they are there for special service like surgery, which is the one condition in medicine that they are financially least prepared to meet.

Is there a remedy for all this complicated condition which will satisfy the two classes most concerned—the physicians and the small wage earners? Can any plan be administered to satisfy both groups and work toward the improvement of medical practice generally? Since the regular profession already underwrites the medical care of the dependents gratuitously, to a large degree, excluding the salaried public health officials, executives, and a few salaried clinicians for special service, can the problem not be met by compulsory health insurance for all wage earners up to a certain amount? Should not the underwriting of this care by the members of each regular county medical society and by staff hospitals already in existence or provided for by the grouping together of the larger employers of labor and the establishment of their own hospitals be extended?

A minimum fee basis, as in Industrial Accident Insurance, could be established. The expenses of administration could be borne by each county, which might also meet the costs of all accessory means of diagnosis (laboratory and x-ray work in a central laboratory as far as possible), or might pay at least a part of that cost, the fund paying the rest. The hospital care would have to be given at first and continuously, in the case of university hospitals, by the permanent staff. Certain hospitals might open a limited number of wards to the profession at large and if insured patients chose to continue under the care of their own physicians, they would have to enter such hospitals. The remuneration of doctors on a fee basis would be paid only when the itemized bill was accompanied by a sufficient and detailed history of the case. Laboratory work done by technicians would serve as an aid to diagnosis and a check on undue prolongation of medical care.

The difficulty about closed hospitals is, possibly, a benefit. It would be to the interest of the doctor to care for the patient at home if possible. Where impossible, as in certain contagious diseases, or impractical, as in tuberculosis and insanity, the profession has long since recognized the desirability of turning the patients over to the staff care of closed hospitals and, under our present substitution of the wall-bed apartment and light-well ventilation for the home, it is necessary, in any event, to extend the groups which must receive hospital care. It is easy to imagine obstetric work excluded from the apartments where small wage earners live, and the time is coming when the standardized after-care, and perhaps the earliest care of malignant disease, will be done in closed hospitals. A step toward it has taken place in Massachusetts, where there are a dozen or more state-supported clinics where diagnosis is made. New York is even more advanced, for its State Institute for the Study of Malignant Diseases has a budget of $200,000 a year, supports 20 free beds, examined specimens from over 11,000 cases last year, 30,000 specimens being reported on, had a gift of $300,000 from the State last year for the purchase of radium, and is conducting the best possible treatment of cancer, free to residents of the State, an average of 1500 a year, besides carrying on extensive animal experimentation with all the facilities which highly trained specialists offer in physics, chemistry and pathology. This institute has been in existence over 30 years.

Finally, a word is in order as to why the local government should bear the expense of the accessory means of diagnosis. Already as a public health measure in our city, the Board of Health examines specimens of sputum for tubercle bacilli, throat swabs for diphtheria, sera for evidence of syphilis and undulant fever, and it is not a far cry to extend this service to the full capacity needed. There are so many poor upstart x-ray laboratories that they must either be regulated or put out of business by proper standardization. There is nothing so dangerous as action on the uncertain evidence of poor x-ray or laboratory work and the experience of varying reports from different laboratories on the same case is disconcerting, to say the least. We feel safe in using drugs and antitoxins only because the Pure Food Law prevents the misbranding of the one and regulates the manufacture of the other. That hospitalization and the accessory means of diagnosis are the big factors in the constantly increasing cost of medical care is shown by some figures obtained from the Southern Pacific Hospital in the last ten years. The total number of days' care of patients has increased just 50%, drugs only 40% (although syphilis is now treated, where it was not five years ago) surgical dressings 45%, commissary department (food and food handlers) 35%, nursing 140%, materials used in chemical and x-ray laboratories 650%, technicians' salaries 285% and medical staff due to appointment of specialists 380%. The fact that laboratories could handle many times the amount of their present work at very little increased cost raises the question of some centralization and coöperation which can be met easily.

The advantages of the interest of our Society will, doubtless, be gone into extensively when the detailed report is made by the State Society on the "Coffey plan," for it is based on the idea that the regular profession should undertake some such scheme as this paper advocates. It has been presented in various forms in different parts of the country for the past 10 years.

The objections to this plan are many and can best be met after they are presented ably by others. The cry against socialism, once raised about accident insurance in industry, is no longer heard; nor does one hear a word about state hospitals for the insane, feeble-minded and the tuberculous. As Dr. Richard Cabot aptly says: "To be taxed for the care of our stomachs and livers is no more an invasion of private right than to be taxed, as we now are, for the care of our lungs and brains."

That there will be abuses attempted by some is a possibility, but they can be met easily by dropping such members from the list of those of the society who elect to carry on the work.

The objection to "state medicine", which is the popular name for the bogey now, is a real one, and the answer is, let us direct the state's efforts to what it does well, and leave to the profession of medicine the doing of its part, without more interference than is necessary to make life insurance the safe and wonderful boon it now is. Private health insurance in industry is here to stay. It needs study, extension, standardization, and who is to see to it that they are done? If not the regular profession of medicine, then we are abandoning our right to first place, which is our time-honored and well-earned privilege in federal, state and municipal health affairs, and we may be sure the cultists will step in and do 80% of the work that should be ours.

CONCLUSIONS

If health insurance is to come, and it seems the only just way to distribute costs, and to provide adequate care for those who cannot pay the ordinary but steadily increasing costs, it should not follow the custom of Germany and England, the more advanced of European countries in which it has been in operation, under state control, for years. Neither should it be a commercial proposition organized by laymen, as is life insurance.

The individuals most concerned are the doctors and the small wage earners. A contract between them is the fundamental basis of fair treatment on both sides. The local medical societies should represent the doctors in this contract.

The national, state and local governments provide for preventive medicine, the study of epidemiologic diseases and certain chronic illness, insanity, tuberculosis, and, in Massachusetts and New York, cancer. The municipal government provides free medical care for the indigent, often imposing heavy burdens on the doctors who give their service. This is leading to serious abuses all over the country because of the high type of this care in free municipal hospitals and the too great cost of it elsewhere for a large percentage of the people. The municipal government should stand in the same relation to the medical profession that the small wage earner does, contracting with the local medical societies for the services rendered the municipality's charges.

The administration of any health insurance plan should be carried on by a paid committee, on which the medical profession should have at least 50% representation, the local government and the insured having the other half.

Since the local government must provide adequate laboratory facilities for the care of its charges (the indigent sick), these same facilities should be available to the insured at nominal cost. The local government, as well as the health insurance organization, should contract with all available hospitals for bed care of suitable patients, as well as for laboratory investigation. It is to the interest of the taxpayers and the local government to have a high standard of health and medical care of the sick industrial class, for the moment jobs are lost through illness, the number of demands on the public funds increases. It is desirable that health conditions be maintained on a plane as high as transportation, lighting, sewage disposal and every other public service.

The state government should regulate and standardize all private health insurance organizations: (1) to prevent such fiascos as have been too often perpetrated on the public; (2) to prevent imposition on municipal authorities by people who should either pay private physicians or carry health insurance; (3) to protect private health insurance organizations now in existence, standardize them, and, where possible, provide for the extension of these organizations to include all dependent members of the families of each group.

It would be necessary, at first, that the charges be placed sufficiently high to prevent any deficit. The amount of care demanded in the early years necessarily would be greater than later on, but actuarial estimates are very sound, and it was the experience of the Metropolitan Life Insurance Association recently, in inaugurating a sickness insurance plan for its employees, that the estimated costs were shown within a fraction of a cent, allowing for the extra load of tonsil operations and the surgical care of a good many chronic cases which had been pending for years.

There may have to be adjustments until a time is reached when the services rendered have been satisfactorily performed and paid for. Dr. Lee Frankel of the Metropolitan Life estimated that it would come under $2.00 a month per person. Michael Davis of the Rosenwald Fund, who next to Dr. Frankel has given the whole problem more study than anyone else in the country, thinks the cost will be materially less. Much will depend on the part taken by the state.

The mounting cost of medicine is due in certain instances to scientific investigation. This takes time, but it also saves time. Anyway it is looked at, it costs money and the indications are that it is likely to cost still more as the years go on.

SUMMARY

Health insurance is the only rational way to distribute the cost of sickness so that the small wage earner may receive, as his right, the best of care.

The organized medical profession should underwrite this care, using already existing hospitals for the care of patients and the university hospitals for problem cases and more difficult and highly specialized surgery.

The part played by the municipality or the state should be minority representation on the administrative board and contribution to the support of laboratory facilities in connection with their existing public health work. All such health insurance should be standardized by state law, precisely as is life insurance. Until life insurance was regulated by state law there were all sorts of badly conceived, unsound financial plans, most of which went to the wall, involving great loss of policyholders. Commercial health insurance as operated in San Francisco by 8 or 10 different companies, in the past 30 years, has been a failure. Both the medical profession and the public have been exploited. The question of income of the policyholders has not been a consideration by these commercially run companies. These ventures have not been proposed as an honest method of providing small wage earners with high-class medical care, but have been distinctly money-making ventures, poorly financed and without the support of the best element of the medical profession. The latest one is openly a cut-rate proposition for the public generally.

A RADIO MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

Can We Prolong Life? *

Can we prolong life? We not only can but have. In the last one hundred and fifty years, the average duration of life has risen from thirty years to fifty-eight, and it is the expectation that this last figure will be increased in a very few years.

How many friends have you lost through smallpox or how many are pockmarked? Many of us born and raised in this country especially in the eastern part, have never been personally acquainted with a victim of this dreaded scourge. Two hundred years ago when smallpox swept through an English or American village, it left two-thirds of the population either in the churchyard or marked for life. Since the source of smallpox is not known, the almost constant absence of the disease at the present time is due solely to the protection of individuals by vaccination and to nothing else, yet every year in many of the states there is a legislative fight by, we hope, well-intentioned people who strive to do away with compulsory vaccination and thereby plunge the nation into a plague which staggered the people of the Middle Ages. How many of these antivaccinationists would permit their unvaccinated children to play for a day in a pest house? Not any, we think.

Typhoid fever is a vanishing disease. In fact it has diminished so much that it is difficult to find a sufficient number in any teaching clinic with which to instruct medical students. This is very different from twenty-five years ago when in the fall of the year a large hospital would have from one-half to two-thirds of its medical beds occupied by cases of typhoid fever. The reason for its disappearance is due to better health measures in every community where there is an efficient board of health and to the vaccination against the disease. In 1919 the United States had the lowest incidence of typhoid because two million soldiers had been vaccinated. It is a disease which occurs principally in young adults, but it may attack persons of almost any age, so if you would avoid this dangerous infection, it would be well to consult your family physician about vaccination. Remember that epidemics of typhoid are not very common—the real danger lies in the typhoid carrier, especially if she is a person occupied in the preparation of food. Such a catastrophe has just occurred where a large number of wedding guests were infected from a single carrier. So you can prolong your life and the lives of your family by a very simple method. It is wise to be vaccinated for you never can tell when the food you are eating has been handled by a typhoid carrier.

Pasteurization, clean milk, clean bottles and utensils have done much in saving the lives of infants and children in all civilized countries. Until this was done, little children suffered a tremendous mortality from the milk-borne diseases. The better understanding and management of the exanthematous diseases of childhood and the use of antidiphtheritic and antiscarlatinal sera have prolonged the lives of children and enabled them to pass safely through the early years of life. The prompt recognition of the various indications of rheumatic fever, the removal of foci of infection such as diseased tonsils and teeth have reduced the amount of that most crippling complication in the young—rheumatic heart disease.

One of the reasons why people are living to a greater age is that children are now enabled to reach adult life, to enjoy it, to lead useful lives, but they die in old age of the degenerative diseases. The energies of the medical profession are now directed

(Continued on page 1304)

*Broadcast December 10, 1931, Station WBZA, 4:50 P. M., Hotel Bradford, Boston.

MEDICAL PROGRESS

PROGRESS IN TUBERCULOSIS

BY JOHN B. HAWES, 2ND, M.D.,* AND MOSES J. STONE, M.D.*

OLEOTHORAX

IN 1922 Bernon introduced this therapeutic measure and his later publications have attracted attention, both favorable and otherwise.

Kuss, G.: *Rev. de la tuberc.* 9:714 (Oct.) 1928, gives the following indications for oleothorax.

1. Progressively obliterative pneumothorax.
2. Cases of pneumothorax with unsatisfacfactory collapse of lesions especially with cavities.
3. Cases of ineffective pneumothorax due to a lax mediastinum.
4. Recurrent pleurisies during artificial pneumothorax therapy.
5. Secondarily infected tuberculous pleurisies.
6. Pulmonary perforations followed by fistulae.

Sterilized vegetable oil with 4-8% of gomenol is used. This is slowly absorbed and needs refills. Most of this work was done in France by Bernon and Kuss. Of late there have been many favorable reports in selected cases by American writers.

B. C. G. TREATMENT

At a meeting of experts, called by the Hygiene Committee of the League of Nations, the general conclusion was reached that this vaccination is harmless; that, however, further work is needed to decide whether it is effective. Animals treated with B. C. G. seem to acquire a heightened resistance to infection. This is manifested by a more or less marked delay in the development of the disease, but not by a modification of the pathologic processes. The favorable results which were reported by Calmette and his associates with the immunization of monkeys, were not confirmed by other workers. The efficacy of this method for the protection of cattle is strongly maintained by some workers, and entirely denied by others. In regard to the oral administrations of the vaccine to infants, it has been questioned whether the bacilli are absorbed in all cases, since only about one-third of treated infants develop tuberculin allergy. Calmette asserts, however, that immunity may exist without tuberculin allergy. The only available proof of the efficacy of such vaccination is the mortality statistics which Calmette has published. These have been severely criticized, so that it is impossible to decide at present as to their accuracy. It is of the utmost importance to determine whether bacilli which actually multiply in the living animal will retain indefinitely their relative lack of virulence. Petroff feels that this is not so under all circumstances. Most writers feel that the B. C. G. vaccination should be used only in infants who are exposed to a source of tuberculous infection.

DIAGNOSIS

Williams L. R., and Hill, A. M.: *J. A. M. A.* 93:579 (Aug. 24) 1929, XCIII, 579, present a study of the appearance of the symptoms in tuberculosis with relation to the seeking of medical advice. They found that cough was the most common symptom reported, occurring prior to admission to a sanatorium in 87% of the patients. In 22% it was the first symptom and in 75% one of the first five. The group of symptoms falling under the heading "too easily tired" was second in importance. In general they concluded that the five most important symptoms of tuberculosis are cough, being too easily tired, loss of weight, anorexia and pain in the chest. A study of the reason for the first consultation showed that all except 2 or 3% of the patients consulted a physician because they felt sick.

Sihle, M.: *Wien. klin Wchnschr.* 42:609 (May 2) 1929 finds that when a patient is lying on his affected side, the hilar region of the homolateral side contains less air and more blood than in the erect posture. The breath sounds, even in a normal person, become sharper on the side upon which he is lying. Thus in patients with a minimal and not demonstrable lesion in the hilar region râles may be produced by the simple change in posture. He recommends the examination in lateral posture especially when pneumothorax therapy is considered and depends on the absence of lesions in the other lung.

This is interesting if true and would warrant further investigation. J. B. H.-M. J. S.

Stobie, W.: *Brit. J. Tuberc.* 23:128 (July) 1929 believes the most common symptoms in fairly early pulmonary tuberculosis to be lack of strength and energy, evening fever and perhaps cough and loss of weight. He feels that x-ray examination of the chest is only complementary to the physical examination. He warns that many agents besides the tubercle bacillus

*Hawes—President, Boston Tuberculosis Association. Stone—Examiner in the Tuberculosis Clinics, Boston Health Department. For records and addresses of authors see "This Week's Issue", page 1315.

may cause fibrosis and sometimes cavity formation.

As a matter of fact there are not so many other agents that will do this. J. B. H.-M. J. S.

Webb, G. B.: *J. A. M. A.* 92:1811 (June 1) 1929 stresses x-ray examination as the only method available for detecting early pulmonary lesions, which are frequently deep seated and discrete. When râles can be heard in a lung or as a rule when hemoptysis or pleurisy or cough has developed, the lesions are advanced. He feels that further progress in eradicating tuberculosis depends to a large degree on routine x-ray examination of all young adults, especially those who give a bad family history.

We believe that a study of constitutional signs and symptoms is of equal importance. J. B. H., M. J. S.

Williams, L. R., and Hill, A. M.: *J. A. M. A.* 92:1989 (June 15) 1929 studying what important diagnostic aids were utilized by physicians in making their diagnosis before admission of the patient to a sanatorium find that the patient who has tuberculosis has little chance for a correct diagnosis unless the physician he consults employs a number of aids in arriving at the diagnosis.

Marberger, A.: *Ztschr. f. Tuberk.* 51:440, 1928 stresses the fact that the failure to diagnose tuberculosis is due to failure to recognize that tuberculosis is a disease of the entire body and is not merely one of the lungs. As differential diagnostic possibilities he points out carcinoma of the bronchi, syphilis, chronic bronchitis, pneumococcus sepsis, the early stages of lymphogranulomatosis, sarcoma, substernal and mediastinal tumor.

Hebert, G. T.: *Tubercle.* 11:55 (Nov.) 1929 urges that every clinician study the x-ray films of his patients because it is only by such experience that the significance of x-ray findings can be learned and their help used to the best advantage.

Ochsner, A.: *J. A. M. A.* 93:188 (July 20) 1929 urges bronchography in all cases of chronic winter coughs lasting over a period of months without roentgenographic evidence of tuberculosis. He feels that bronchography is best accomplished by the passive technique. This consists of first using a good antiseptic mouth wash. The anterior tonsillar pillars are then painted with 10% cocaine solution continuing the anesthesia until the swallowing reflex is abolished. The patient then takes into his mouth 3 c.c. of a 3% solution of procaine hydrochloride, tips his head backward, protrudes his tongue and aspirates the anesthetic into the trachea. After painting the anterior pillars again, the patient is placed behind the fluoroscopic screen, given 10 c.c. of iodized oil and aspirates it into the proper bronchial tree with the aid of posture. The author has used this method in 1500 instances without untoward results.

In our opinion this procedure comes under the category of "cruelty to animals" and is quite unnecessary. J. B. H., M. J. S.

Hollander L.: *Klin. Wchnschr.* 8:2194 (Nov. 19) 1929 claims that the manifestations and the course of diaphragmatic pleurisy is characteristic and that it should be recognized as a clinical entity. Elevation of one leaf of the diaphragm with negative findings in the lungs, with lagging of the diseased side of the thorax, plus a smoothly curved diaphragmatic line and with decreased tonus in the presence of the more or less characteristic spontaneous and induced pain, are considered pathognomonic for the disease.

At best a rather rare complication. J. B. H., M. J. S.

Frothingham, C.: *Am. Rev. Tuberc.* 23:107 (Feb.) 1931 discusses the differential diagnosis of malignant neoplasms of the lung. He feels that if there is doubt about the diagnosis a subsequent x-ray picture taken in a short time will usually clear it up. In this condition bronchoscopic study is usually of little benefit, as in a great majority of cases the growths are out of sight from the bronchoscope. Should they be within range of vision, a bronchoscopic study may help to settle the diagnosis. A careful study of the case, with special regard to the x-ray findings, should bring out a clinical picture that will not be confused with pulmonary tuberculosis.

Fischel, Karl: *Am. Rev. Tuberc.* 23:139 (Feb.) 1931 differentiates apical tuberculosis and the nonapical infiltrations. He finds that pulmonary tuberculosis often begins with nonapical infiltrations, which may undergo retrogressive changes, or may progress, causing extensive involvement of the lung in a short time. He feels that apical tuberculosis is as a rule, a benign late form; the evolution of progressive disease from apical lesions is a comparatively rare occurrence. He adds that roentgen examination is the only method by which one can exclude pulmonary tuberculosis which begins with nonapical infiltration. Radiography of the chest should be used as a routine method. Surgical collapse should be attempted in the treatment of infiltrations that do not retrogress spontaneously. He warns that every effort should be made to diagnose acute infiltrations and to hospitalize patients with this type of lesion immediately.

Fales, L. H.: *Southwestern Med.* 14:221 (May) 1930 feels that moderate apical dullness and moderate changes in breath sounds should usually be ignored. Too much refinement in physical diagnosis often leads to error. He found that more than 50% of cavities can be diagnosed only roentgenologically. Parenchymal râles, i.e., medium or fine râles are found

in about 90% of all tuberculous lungs, other types of râles usually indicate complications. Fibrosis or healing has the same effect on the production of parenchymal râles, as has increased infiltration. Nevertheless, he emphasizes that these râles are still the most important physical sign of pulmonary tuberculosis, but that they must be adequately interpreted in conjunction with other physical and roentgenological findings and with symptomatology.

A sound and sane point of view. J. B. H.-M. J. S.

Breuer, M. J.: *Ann. Int. Med.* 3:1272 (June) 1930, is of the opinion that the diagnosis of pulmonary tuberculosis does not depend upon the finding of tubercle bacilli in the sputum. He states there is no one pathognomonic sign or test. The clinical and pathologic manifestations of the disease are so varied so as to simulate several different diseases. They seem to have little in common, and the problem is to determine to what extent the patient's illness is due to his tuberculous process. He feels that diagnostic efforts must consist of a complete study of the patient's body, personality, history and environment.

Sound but as old as the hills. J. B. H.-M. J. S.

Alexander, J. B.: *J. State Med.* 38:284 (May) 1930 warns that the absence of a pulmonary lesion should be established before hemoptysis is declared to be of nonpulmonary origin, even when a possible nonpulmonary source is demonstrable. Absence of cough is no contraindication to a diagnosis of pulmonary tuberculosis. He finds that fatigue is a very important symptom.

Williams, L. R., and Hill, A. M.: *New Eng. J. M.* 203:418 (Aug. 28) 1930 give the experiences of 1499 patients before the diagnosis of pulmonary tuberculosis was made; of these, 20% received the correct diagnosis at their first consultation, and many others as soon as the physician was able to ascertain the results of sputum and x-ray examination. However, in 1199 instances the physician told the patient his ailment was something else. In 114 or 9.5% the diagnosis of influenza was given, while in 103 or 8.6% the trouble was blamed on some part of the digestive system. In 99 cases ill-defined diagnoses, such as overwork, malnutrition, mixed infection, etc., were given. Thyroid disease was diagnosed 9 times. In 18 instances patients were told that hemorrhages did not come from the lung. They feel that the need for better and more intelligent diagnosis is apparent.

PROGNOSIS

Rubin, E. H.: *Am. Rev. Tuberc.* 22:184 (Aug.) 1930 in a study of 500 patients who died of chronic pulmonary tuberculosis found an incidence of intestinal tuberculosis in approximately 65%. He found the complication twice as frequent among patients under 30 as it was in those over 50 years of age, also that in the younger individuals there was a greater tendency to extensive involvement. He confirms the observation of others, that in many respects intestinal and laryngeal tuberculosis are closely related, both as regards their frequencies and their relationship to the pulmonary disease. He states that it is not uncommon to see in the same patient signs of healing in the lungs, intestines and larynx. A fulminating pulmonary disease on the other hand, is usually associated with a similar pathologic process in the intestines and larynx. He feels that the prognosis of patients with intestinal tuberculosis is greatly influenced by the age of the patient, the course of the disease, and the character of the tuberculous process as manifested in the lungs and larynx.

Lord, F. T.: *New Eng. J. Med.* 201:410 (Aug. 29) 1929, studying the effects of acute respiratory infections on pulmonary tuberculosis concludes that influenza appears to be an unfavorable complication of tuberculosis, that the effects of pneumonia are doubtful and that it is difficult to obtain evidence regarding other respiratory infections.

Rubin, E. H.: *Am. Rev. Tuberc.* 22:710 (Dec.) 1930, studying the course of tuberculosis in the lungs concludes that the left lung more frequently than the right, is the seat of progressive disease that requires mechanical compression or is more liable to sustain spontaneous rupture as a result of the rapid evolution of the disease. He found that the tendency for chronic pulmonary tuberculosis is to localize initially in the right lung. The characteristic mode of spread of the disease to the contralateral lung accounts for the greater frequency of artificial and spontaneous pneumothoraces in the left lung.

TREATMENT

Matson, Ray W.: *Am. Rev. Tuberc.* 22:1 (July) 1930, in a lengthy and comprehensive paper on phrenicectomy discusses the operative technique, anomalies of the phrenic nerves, dangers of operative complications and effect upon the lung. He discusses the end results of hemidiaphragmatic paralysis in 66 cases. He finds that if less than 10 c.m. of nerve fibre have been evulsed, a return of diaphragmatic function can be expected in 25-30% of all cases, unless all communicating or accessory fibres have been resected. He attributes the beneficial influence of an induced hemidiaphragmatic paralysis to the collapse of diseased lung tissue affected by the rising diaphragm rather than to the rest provided. He bases this conclusion upon the observation that the most satisfactory results were seen in those cases presenting a high dia-

phragmatic rise, whereas the worst results were obtained in those exhibiting little or no rise of the diaphragm. He finds the most important clinical effects are a reduction of the quantity of sputum, facility of expectoration, reduction of fever and improvement of the general condition of the patient coincident with the disappearance of the above symptoms. He recommends this operation in all patients for whom a pneumothorax is impossible because of adhesions, as an independent procedure in those cases in which a thoracoplasty is impossible and as a preliminary step to every thoracoplasty.

Breuer, M. J.: *Am. Rev. Tuberc.* 22:57 (July) 1930, reviews the present status of treatment in early tuberculosis. He emphasizes that a recovery is possible in a large proportion of these "early" cases. The outlook for a cure depends not only on the patient's pathologic involvement, but on his mental equipment and on his economic resources; also on the special aptitude of the physician for treating this type of case. He pleads that patients are to be treated as individual human problems and not as "cases" of tuberculosis. The working out of the personal or human side of each case is quite as essential to recovery as is the medical side. He briefly reviews and evaluates the various forms of our present-day treatment in early tuberculosis.

Campbell, H. B.: *New Eng. J. Med.* 201:395 (Aug. 29) 1929, reviews briefly the treatment of complications in pulmonary tuberculosis. For hemoptysis he advises rest in a recumbent position, sedatives, ice bag to the chest, laxatives if necessary, and artificial pneumothorax in persistent bleeders. For pleurisy with effusion, he advocates replacement of the fluid with gas, if the opposite lung is in good condition. For pain he gives small doses of codeine or morphine, hot application and strapping. As to spontaneous pneumothorax, he feels that it is a grave complication and if pleural infection ensues usually leads rapidly to death.

One might well inquire as to what possible good an ice bag can do in pulmonary bleeding. J. B. H.-M. J. S.

Sevier, J. A.: *J. A. M. A.* 93:982 (Sept. 28) 1929 outlines the modern methods of treatment of pulmonary tuberculosis. He emphasizes that the three requisites for ultimate arrest of pulmonary tuberculosis are rest of body and mind, fresh air, and a well-balanced diet rich in calories. He gives the indications for artificial pneumothorax as follows: in unilateral progressive pulmonary disease that has not responded to a reasonable period of enforced rest, in severe or persistent pulmonary hemorrhage; following the removal of fluid in massive pleural effusions and in maintaining collapse of spontaneous pneumothorax. Supplementary phrenicectomy is indicated in those cases in which adhesions prevent collapse of a lower lobe; also as an independent measure on the more diseased side when the extent of involvement of the other lung prohibits pneumothorax. He recommends thoracoplasty in cases when the disease is essentially unilateral and productive, and when prolonged rest and pneumothorax have failed; in patients in whom there is reactivation following reëxpansion of the lung after pneumothorax; in persistent hemorrhage when pneumothorax is impossible; and as a supplement to pneumothorax rendered incomplete by adhesions.

Goldberg, B.: *J. A. M. A.* 93:586 (Aug. 24) 1929, discusses the uses and limitations of sanatoriums for the tuberculous. He advocates the speeding up of activities and constructive innovations in the sanatoria, as a patient receives more benefit from a few months' stay in an institution in which he is subjected to active scientific treatment than he will from a 2 years' stay in a sanatorium in which indifference and passivity dominates. He deprecates the assignment of slight chores to patients, as it is often false economy, resulting in longer stay in the sanatorium, and perhaps the loss of chance for recovery. He feels that exercise when indicated should be established on the basis of a medical prescription, carefully regulated and supervised. Plenty of fresh air should be obtained without the disadvantage of cold and physical discomfort. He advocates the merging of the old sanatorium plan into the general hospital plan, with changes in equipment and personnel; the provision of modern operating rooms and equipment, and the appointment of a competent attending and consulting staff. He is very emphatic on the importance of close coöperation of the sanatorium unit and the field service unit, and urges the establishment of a pneumothorax clinic at one of the centrally located out-patient dispensaries, in order to eliminate the injudicious practice of requiring discharged patients to travel long distances for a refill.

This article is full of sound advice. J. B. H.-M. J. S.

Hennes, H.: *Beitr. z. Klin. d. Tuberk.* 71:56, 1928, discusses the treatment of pulmonary tuberculosis by dust inhalation. He based the theory of this treatment on the fact that lime or sulphur or their compounds in industry are associated with a rarity of tuberculosis among the workers. The treatment consisted of inhalations 4-6 times daily for 2-minute periods and increasing to 6-8 times for 5-8 minutes. The treatment was continued for 4 months and the cases have been observed for a year and a quarter. He found that silicosis was not observed in these cases roentgenologically. He noted improvement in the roentgen findings, sedimentation reaction, the sputum, the temperature and weight curve.

This, of course, needs further study before it can be accepted. J. B. H.-M. J. S.

O'Brien, E. J.: *J. A. M. A.* 92:463 (Feb. 9) 1929, is of the opinion that practically every patient with unilateral tuberculosis should be given some form of compression therapy. In patients with exudative, rapidly spreading lesions, phrenic operations should not be considered, pneumothorax being preferable, but should the same lesion be seen after the activity subsides and only a soft walled cavity remain, a crushing of the phrenic nerve may be done. In uncontrollable hemorrhage, even in bilateral lesions, if a pneumothorax is not possible a crushing or an exairesis should be done on the side where the bleeding occurs.

(How this is to be determined is not stated. J. B. H.-M. J. S.)

He advocates phrenicectomy before reëxpansion is permitted in the case of successful pneumothorax therapy in which the lung has been kept down for several years. He found that in basilar tuberculosis remarkably good results are occasionally seen from phrenicectomy, but these lesions must be carefully watched and any spread checked with pneumothorax therapy. Phrenicectomy is also a useful adjunct to pneumothorax when lateral or apical adhesions prevent proper collapse of cavities, especially if the base of the lung be adherent at the same time to the diaphragm, because the resulting relaxation often permits further collapse of the lung by means of pneumothorax.

Jessen, H.: *Ztschr. f. Tuberk.* 52:369, 1929, emphasizes the importance of determining the function of the heart before performing thoracoplasty. The shorter the period of intoxication the better is the prognosis of the procedure. He emphasizes the proper evaluation of cases and early operation before toxic changes have affected all the organs.

Rossel, G.: *Rev. de la tuberc.* 9:909 (Dec.) 1928, reviews causes of complications that may arise during artificial pneumothorax. He found that febrile exacerbations often coincide with a refill. Sticking a needle in the chest in such instances seems to reactivate the pleuritic process. Again one should be cautious in the presence of slight unexplained rises of temperature. If at this time a refill is given, one may see a classical picture of pleurisy develop. He feels that it is better when in doubt to suspend operations six to ten days as the danger of adhesions occurring within this short period is less than that of stirring up a violent pleural reaction. He found that by giving refills more slowly with more regard for the temperature, severe pleural complications become strikingly less.

Bruns, E. H., and Casper, J.: *Am. Rev. Tuberc.* 22:739 (Dec.) 1930, reporting many cases of thoracoplasty in cases of chronic pulmonary tuberculosis conclude that this operation has a well-established place in the treatment of tuberculosis. They advise it when adhesions prevent a successful pneumothorax collapse. It is applicable to advanced unilateral cases with cavitation and showing evidence of fibrosis. They feel that if one lung is practically destroyed and the other hypertrophied, even though it is involved, thoracoplasty is not contraindicated, providing the lesions are fibrous and the involvement not too extensive. They find that cavities in the contralateral lung will frequently heal after thoracoplasty. They advocate phrenic nerve operation as a preliminary to a complete thoracoplasty. Cases of pyopneumothorax with a good contralateral lung they treat by phrenicoexairesis followed by anterior and posterior thoracoplasty. They find that in bilateral cases an upper stage thoracoplasty may result in the collapse of a cavity at the apex of the most diseased lung and bring about improvement in both lungs. They urge that every effort should be made to lower the operative mortality by means of thorough preoperative preparation, good operative technique, and careful postoperative care because in this way alone can one improve the morale of patients and gain their consent to early operation.

Cooper, Alexander F.: *Am. Rev. Tuberc.* 22:769 (Dec.) 1930, is of the opinion that phrenicoexairesis is a valuable procedure in selected cases of unilateral pulmonary tuberculosis and that even some involvement of the contralateral lung with small cavitation is not in itself a definite contraindication. He likewise believes that it may be of possible benefit in bronchiectasis. He found this useful in cases in which there were pleuritic adhesions preventing pneumothorax because it not only lessens the motion of the diaphragm, but causes a partial collapse of the lung. He finds that the operation may be of benefit in upper-lobe lesions because of the fact that this operation in itself may not tend primarily to cause a collapse of the less involved part of the lung, but on the other hand a greater collapse of the diseased portion.

Pollock, William C.: *Am. Rev. Tuberc.* 22:780 (Dec.) 1930, gives a summary on the subject of collapse therapy. Collapse therapy, he states, depends for results upon compression of the lung or upon lessening of thoracic mobility. He feels that pneumothorax should be continued although the collapse may not be to the extent desired. Discontinuance of the pneumothorax treatment may cause rapid retrogression when parenchymal lesions are active or when cavities are patent. Thin-walled cavities with adequate drainage, situated in pulmonary tissue relatively free from tuberculous changes in a patient with good resistance, are apt to heal under collapse therapy even if the cavity is only par-

tially collapsed. Thick-walled cavitation, situated in areas of pulmonary infiltration or fibrosis, will not heal spontaneously or when only partially collapsed. He believes that this failure to heal is due largely to nutritional disturbance. He believes that autogenous tuberculinization, produced by compression of active tuberculous pulmonary lesions during the process of collapse therapy, stimulates healing in contralateral lung as well as in the compressed lung. The procedure causes a reaction about the tuberculous lesions which is beneficial when produced in proper amount, in that it stimulates fibrosis. He concludes that collapse therapy applied early in unilateral cases helps to bring about rapid healing. In bilateral cases collapse therapy should be delayed until the fibrous element predominates in the better lung for otherwise retrogression may occur. This is due to the relative high sensitivity to tuberculin which is present early in the disease and which decreases as healing takes place.

Breuer, Miles J.: *Am. Rev. Tuberc.* 23:297 (Mar.) 1931, coined the term of "fatigue conscience" as applied in the treatment of pulmonary tuberculosis. He argues that the "fatigue conscience" is an essential element in the treatment, or rather training of the ambulant and convalescent patient and that the further the patient develops his automatic response to fatigue sensation by rest, the more he can be freed from the arbitrary restrictions of the physician's schedule and left to himself. Without it, he can never be certain of the permanence of his improvement. Low grade clinical tuberculosis is fundamentally the result of excessive stress. When the "fatigue conscience" has been developed to a point where it functions satisfactorily, the patient may safely leave the physician's continued supervision. Until then, he is not safe to do this.

Hebert, G. T.: *Brit. J. Tuberc.* 24:71 (Apr.) 1930, writing on pulmonary hemorrhage advocates the following treatment. Warmth, avoidance of exertion and semi-recumbency is important. He advises caution in the use of sedatives. Physiologic salt solution by vein and calcium chloride intramuscularly may be of value. If the bleeding is arterial he advises pneumothorax therapy. Expectorants are useful in venous bleeding, and morphine is not needed. Special treatment for tuberculosis is not necessary, unless fever or other symptoms of activity are present.

Pneumothorax is the one real method of treatment whether the bleeding is arterial or venous. We doubt the ability to decide on this point. J. B. H.-M. J. S.

CHILDHOOD TYPE OF TUBERCULOSIS

Bigler, J. A.: *Am. J. Dis. Child.* 38:960 (Dec.) 1929, reports the results of his studies on the interpretation of roentgenograms of the chest in children based on observations at necropsy. He undertook this study to ascertain just what pathologic changes were present in the lungs of children to account for shadows in the roentgenograms of the chest. He found that the primary focus is present far more often in postmortem specimens than is evidenced from the films. Tuberculous cavities were found pathologically on several occasions, but only in a few instances was it possible to demonstrate them in the roentgenogram. He found that a pathologic change in the hilum may be due to many different processes, some of which for a time resemble those due to tuberculosis. He feels that the frequency of calcified nodes in the chests of children is overestimated. Although it is supposed that it takes about three years for calcium to be deposited, he found it in children under two years of age. He adds that calcified lesions in children are more important than those in adults because they frequently represent only partial healing from which a disseminated tuberculosis may originate. He therefore urges more care to be taken in the diagnosis of calcification with its related diagnosis of tuberculosis.

Chadwick, H. D., and Zacks, D.: *Am. Rev. Tuberc.* 22:626 (Dec.) 1930, give the results of their studies on 42,000 children. They find that the ratio of reactors to tuberculin shows a gradual trend upward from 21% infections at the age of five, 28% at the age of 10, to 35% at the age of fifteen. The average percentage for the whole group is 28. They found in one city of 60,000 that the number of children reacting to the tuberculin test in different school districts varied from 11 to 60%. They found that the number of reactors increase with the opportunities that the child has for contact with bacillus carriers. Chronic forms of pulmonary tuberculosis such as are found in granite workers, expose and infect more children than the more acute cases. Crowded living conditions also afford more opportunities for contact and congested areas show a higher percentage of infection. They found twice as many reactors among children with a history of direct contact with a case of pulmonary tuberculosis. The survey made in 1917 by the Framingham Demonstration and the one made in 1926 by the State clinic for the same age-group, 3-7 years, showed a reduction of 24% of reactors to tuberculosis. They conclude that tuberculous infection is no longer universal in Massachusetts and that a tuberculin test of a large group of adults may not show more than 50% reactors. Thus, with the marked decrease in the number of infected persons, they feel that tuberculin tests become of diagnostic value in young adults, as well as in young children.

Dickey, L. B., and Seitz, R. P.: *Am. Rev.*

Tuberc. 23:13 (Jan.) 1931, report their studies on tuberculous infection in children based on 3,500 intracutaneous tuberculin tests. They found that the incidence of tuberculous infection, as shown by such test, increases with age. They feel that the Pirquet tuberculin test should not be employed in studies of this kind, since it gives erroneously low figures. They add that frequent surveys of representative cross sections of the child population in all communities would be valuable to show the changing conditions of exposure.

Chadwick's advocacy of the von Pirquet test for this purpose is nevertheless based on sound reasoning. J. B. H.-M. J. S.

Schlesinger, B., and Hart, P.D'A.: *Arch. Dis. Childhood* 5:191 (June) 1930, believe that most of the tuberculization of home contacts takes place in infancy and early childhood, whereas at the present day, most of the infection of non-contacts is received in middle and later childhood and in adolescence. They found, however, that both groups are tubercularized to the same extent when adult life is reached. They believe that there is no reason for assuming the existence of inherited predisposition.

Lord, F. T.: *New Eng. J. Med.* 203:68 (July 10) 1930, emphasizes the fact that recognition of the childhood type of tuberculosis depends chiefly on the tuberculin reaction and the x-ray findings. In some types a history of exposure and grouping of symptoms are highly important. The prognosis depends in large measure on the amount of infection and the possibility of eliminating further infection and establishing a favorable environment. He adds that children in whom the only evidence of infection is a tuberculin reaction need no special care. Those with definite pathologic changes, but apparently normal, may require special privilege classes, open air and open window schools, preventorium care or its equivalent.

Chadwick, H. D.: *New Eng. J. Med.* 202: 1044 (May 29) 1930, is of the opinion that childhood and adult types of pulmonary tuberculosis are distinct. The childhood type develops on nonsensitized tissue and spreads through to lymph channels, whereas in the adult type spread is by continuity or by aspiration or by the hematogenous route. He warns that tuberculous lesions in a child are a source of danger, throughout adolescence and early adult life, although apparently retrogressing or calcifying.

Braeuning, H., and Neumann, M.: *Ztschr. f. Tuberk.* 53:385, 1929, feel that children from tuberculous families should be examined between the ages of three and twelve years once or twice yearly, and between birth to two years and 14-25 years at least three to four times a year by fluoroscopy and in the case of suspects with roentgenograms. With marked exposure frequent roentgenograms are advised. Only in this way can tuberculosis mortality among children be reduced.

Wolff, E., and Stone, R. S.: *J. A. M. A.* 94:458 (Feb. 15) 1930, found that children without acute illness and with a negative tuberculin reaction may show on the x-ray plate certain signs resembling those of tuberculosis. They conclude therefore that a diagnosis of tuberculosis of the mediastinal lymph nodes or lung tissue cannot be based on such observations.

PNEUMONOCONIOSIS

Clark, W. I.: *J. Indust. Hyg.* 11:92 (Mar.) 1929, radiographed people exposed to abrasive dust first in 1924 and again in 1928. Very little difference was found. Of 69 such only one who had been exposed for 26 years showed second stage silicosis. There were x-rayed one hundred and thirty-seven who had been exposed over periods varying from 10-42 years. Of them 42 were normal, 12 showed slight silicosis, 77 showed first stage and six, second stage silicosis. None were in the third stage. Eleven cases showed healed pulmonary tuberculosis.

Heffernan, P.: *Brit. M. J.* 3584 (Vol. 2), 489 (Sept. 14) 1929, is of the opinion that silicosis is the result of the local action of hydrated silica upon the pulmonary tissue. This action is of a physicochemical nature, and the speed of its development, other things being equal, depends upon the rapidity with which fresh silica hydrosol is formed and brought into contact with pulmonary tissue. Substances which favor the formation of silica hydrosol from silica, when added to the silica dust, accelerate the development of silicosis, for example, alkalies. Substances which retard the formation of hydrosol from silica, or which coagulate the hydrosol when formed, prevent silicosis. Examples of this are coal dust and clays. The action of silica in producing nodular pulmonary fibrosis has not been paralleled so far by any non-silicious substance.

Hayhurst, E. R., et al.: *J. Indust. Hyg.* 11: 228 (Sept.) 1929, have completed a physical and roentgenologic examination of 919 employees in sandstone works in Ohio with the result, (1) that the incidence of silicosis was found to be low, but was higher in proportion to duration of employment and, (2) that the incidence of tuberculosis among the workers was low. The silicosis appeared only after an average of 16½ years' exposure. The rock contains from 92.15% to 97% crystalline silica, but the crystals are obtuse and held by a matrix of carbonates, silicates, kaolin, sulphides and oxides of iron and they suggest that this may be responsible for the relative innocuity of this silica.

Schott, F.: *Beitr. z. Klin. d. Tuberk.* 69:43, 1928, making inhalation experiments with ce-

ment dust on rabbits found that the cement dust is taken up in the lungs by phagocytic cells similar to those acting on coal dust, and in distinction to silicon dust showed only a mild tendency toward inflammation. Among 100 cement workers, there were 21 cases of pneumonoconiosis, 7 with the hilum form and increased radiating strands, and 14 with the pulmonary form. Most of the workers had served for more than 10 years and in none of 100 cases was there one with open tuberculosis, but in 10 there were shadows in the upper lobe of the cirrhotic type. He concludes that cement inhalation does not predispose to tuberculosis, nor does it tend to cause a breaking down of a healed case.

Wood, W. B.: *Tubercle.* 10:353 (May) 1929, found cough and dyspnea to be the cardinal symptoms in 15 cases of asbestosis. In the series of cases studied, the shortest period of exposure to asbestos dust was one year and the longest, 14 years. Roentgenographs showed a diffuse fibrosis affecting chiefly the lower 2/3 of the lung. Some of the films exhibited a ground glass appearance; others, what they describe gave a "shaggy" appearance.

Wood, W. B., and Gloyne, S. R.: *Lancet,* 218 (Vol. 1): 445 (Mar.) 1930, consider the cardinal symptoms of asbestosis to be dyspnea and cough. Dyspnea comes early, causing the worker to discard his respirator. Cough is seldom marked and is non-productive or may be accompanied by a little viscid mucoid sputum, which rarely may be blood streaked. They describe other symptoms as anorexia, lassitude, chest pains and loss of weight, often extreme. Asbestos corns appear in the skin of exposed parts. The characteristic x-ray picture of an advanced uncomplicated case is a diffuse haze, resembling ground glass, distributed over the lower lung fields. Closer inspection reveals areas of fine mottling and linear shadows. The costal angles are obliterated and the dome of the diaphragm is obscured. They found that once the asbestosis bodies appear in the sputum the course of the disease seems progressively downward. Cessation of exposure to asbestos dust then does not check the spread and death ensues from bronchopneumonia or tuberculosis.

Soper, Willard B.: *Am. Rev. Tuberc.* 22:571 (Dec.) 1930, is of the opinion that when there has been exposure to asbestos dust the presence of pulmonary asbestosis should always be suspected. The most common single symptom he found is dyspnea. This and the other symptoms are, as well as the physical signs, essentially those of a progressive generalized lung fibrosis. He finds that x-ray examination is of great value in establishing the diagnosis.

Arnould, E.: *Rev. Belge d. l. Tuberc.* 20:193 (Oct.) 1929, found that pulmonary tuberculosis is relatively uncommon among coal miners, the mortality due to it being from one-half to two-thirds of that generally found for corresponding ages. Coal dust provokes no inflammatory reaction ending in fibrosis and it has no influence on the development of tuberculosis. However, he feels that it may prevent accumulation of silica dust, which produces sclerosis and favors tuberculosis. Outside their work, coal miners enjoy generally favorable conditions of life, which tend to maintain resistance to latent infection.

International Commission Report: *Rev. Belge d. l. Tuberc.* 20:161 (July-Aug.) 1929, deals at length with various aspects of silicosis. Discussing its etiology they emphasize that the disease is consequent upon inhalation of certain dusts especially free silica. Two factors are important in etiology, (1) concentration of the dust in the air and (2) duration of exposure. As to the clinical aspects they found that two-thirds of the grave forms of silicosis have an associated tuberculosis, and tubercle bacilli are demonstrable during life in 40% of all cases. The roentgenographic examination does not always distinguish between simple silicosis and tuberculosilicosis. Loss of weight, night sweats, progression of the physical signs, and sometimes erythrocyte sedimentation permit one to make the diagnosis of tuberculosis. As to its symptomatology, the most important symptoms are dyspnea, fatigue, sweating, headache, palpitation and in advanced cases, cyanosis. They emphasize that tuberculosis should always be suspected even in the absence of tubercle bacilli. On physical examination one finds diminished respiratory murmur, occasionally moist and crepitant râles. There is apt to be dilatation and hypertrophy of the right heart. Emphysema, bronchiectasis and gangrene may complicate the picture. They conclude that all workmen exposed to an atmosphere rich in quartz dust should be examined regularly including x-ray check-ups.

Wood, W. B., and Page, D. S.: *Tubercle.* 11: 157 (Jan.) 1930, report that in a patient with pulmonary asbestosis, three points of special interest were observed, namely: (1) the rapid evolution of the tuberculous process in a patient who had been exposed to asbestos dust—(2) the presence in the lungs of a large number of asbestosis bodies within two years of the first exposure to dust, and (3) the presence in the lungs of asbestos fibres in various stages in the formation of asbestosis bodies.

Gloyne, S. R.: *Tubercle* 11:151 (Jan.) 1930, studying the reaction of tissues to the asbestos fibre found that it acts as a benign irritant, producing granulation tissue. This granulation tissue contains many giant cells, indicating presumably an attempt to destroy the asbestosis fibres by phagocytosis. He found that asbestos

injected repeatedly intravenously appeared to have no toxic effects on distant tissue.

BRONCHIECTASIS AND LUNG ABSCESS

Hartung, A.: *Am. J. Roentgenol.* 22:120 (Aug.) 1929, studied 92 cases of bronchiectasis. He comes to the following conclusions: (1) In about 60% of all cases a diagnosis of bronchiectasis can be made from a study of the plain films. (2) In the majority of the remaining cases, such an examination will reveal findings of a nature to indicate the probable presence of bronchiectasis or the desirability for further investigation by bronchography. (3) Diagnostic bronchography with iodized oil is essential for obtaining accurate information relative to the nature, location and extent of bronchiectatic dilatation.

This last statement is interesting if true. J. B. H.-M. J. S.

Thorpe, E. S. Jr.: *Am. J. M. Sc.* 177:759 (June) 1929, reports a series of 53 cases of bronchiectasis in children under 13 years. He found bronchopneumonia, pertussis and measles to be the common antecedent factors in the production of bronchiectasis. Disease of the accessory sinuses was found to be a concomitant factor in maintaining a state of sepsis. He presents evidence showing the damaging effect of the disease on the nutrition of the affected children. He feels that a rational mode of treatment includes drainage of the pus-filled bronchi and care of the general health of the patient.

Bredow: *Beitr. Z. Klin. d. Tuberk.*, 1928-707 points out that early institution of pneumothorax is necessary in cases of pulmonary abscess, as adhesions are sure to interfere at a later period. If pneumothorax does not succeed, surgical intervention is advised.

The latter is rather radical advice. J. B. H.-M. J. S.

Morgan, H. J.: *Am. Rev. Tuberc.* 22:491 (Nov.) 1930 differentiating the diagnosis of subacute and chronic pulmonary infection from pulmonary tuberculosis notes that nontuberculous pulmonary infections have certain features in common. (1) The physical signs of disease are extensive while the constitutional symptoms of disease are relatively slight. This is in sharp contrast to the usual state of affairs in tuberculosis. (2) The evidence of disease is greatest in the lower lobes of the lungs, while in tuberculosis the upper lobes usually show the maximum involvement. (3) The sputum, usually abundant, contains no tubercle bacilli in spite of extensive physical signs of pulmonary disease—a very rare occurrence in tuberculosis. (4) If leucocytosis is present it is due to an increase in the granulocytes. An increase in monocytes, either absolute or relative, rarely occurs.

Basch, T.: *Wien. Klin. Wchnschr.* 43:361 (Mar. 30) 1930, quotes Sternberg who advocates the use of emetine in combination with neosalvarsan and trypaflavine for the treatment of pulmonary suppuration, especially in chronic bronchitis and bronchiectasis. He reports that during 15 months a number of children with bronchiectasis and chronic bronchitis were treated with daily subcutaneous injection of .02 to .03 gms. of emetine hydrochloride in a 10% solution. After ten or twelve days the injections were stopped and after another period of about 10 days the patients received at daily intervals salvarsan or transpulmine. He found that the results after a year's observation were quite satisfactory; the symptoms and expectoration disappeared completely or were greatly diminished. Since the clinical diagnosis of bronchiectasis is usually made only after the lesion is far advanced, he advocates the treatment with emetine in combination with salvarsan or trypaflavine in all those diseases which are known to cause or prepare the ground for bronchiectasis.

This is worthy of further study. J. B. H.-M. J. S.

HELIOTHERAPY

Weinbren, M.: *Brit. J. Tuberc.* 23:117 (July) 1929, reporting for the British Medical Research Council stresses the point that while many of the beneficial results obtained from light therapy are as yet unable to be explained or understood scientifically, nevertheless clinical observation of such results at least warrants further investigation and more rigid and careful application of ultraviolet therapy by the use of dependable apparatus in the hands of qualified actinotherapeutists.

Rollier, A.: *Brit. J. Actinotherapy,* 4:78 (July) 1929, states that pigmentation is a normal attribute of the skin in contact with air and sunshine which should be considered in connection with other functions of cutaneous physiology and general metabolism. Pigment is not a screen to stop the penetrating light rays. It is a substance which transforms the rays of short wave length into rays of longer wave length, the latter being more penetrating. It also transmits heat to the subcutaneous layers, especially when the total spectrum is used. He feels that the capacity of the skin to pigment is usually directly proportional to the capacity to heal, and those persons who do not pigment are the ones who have a poor prognosis in tuberculosis. He adds that pigment is a "reservoir" of "radio-activity".

Bunker, J. W. M.: *New Eng. J. Med.*, 202: 1229 (June 26) 1930, gives the results of the study by a committee of the Medical Society of the County of N. Y. on the use and abuse of ultraviolet light. This committee he states concluded that uncontrolled self-treatment by laymen was undesirable. Also that advice on the employment of ultraviolet light to human beings should be restricted to those who have become expert through study and experience. This committee felt that the miscellaneous use of this agency is to be deplored rather than encouraged.

Rollier, A.: *J. State Med.* 38:197 (Apr.) 1930, writes on heliotherapy and occupational therapy in tuberculosis. He states that heliotherapy has both a general and specific effect upon the body, affecting particularly the skin and musculature and general morale. Occupational therapy gives to the patient's spirits a material boost which has a threefold value, namely physical, moral and social, and often an economic value as well. He feels that so successful is this work-cure scheme becoming, that plans are under way for the establishment of an "International Factory Clinic" which will comprise principles based on both medical and industrial requirements.

NON-PULMONARY TUBERCULOSIS

Ragolsky, H.: *New Eng. J. Med.* 201:11 (July 4) 1929, studying the association of non-pulmonary and intrathoracic tuberculosis, found pulmonary tuberculosis to exist in 17.5 per cent. in a group of 200 cases of non-pulmonary tuberculosis. In 110 of these 200 cases intrathoracic pathologic change was demonstrable. He feels that where no intrathoracic lesion is demonstrable we must not be led to believe that the extra-thoracic lesions were primary, but that the portal of entry was elsewhere than the chest.

DIET

Hawes, J. B. 2nd: *J. A. M. A.* 93:452 (Aug. 10) 1929, studying the subject of diet in the treatment of tuberculosis, found that, while opinions varied, the majority of authorities in this country agreed upon the following principles: Lunches between meals are rarely advisable, eggnogs in any form are bad; and that one quart of milk daily with meals is the maximum amount that should be allowed. No special foods were emphasized. As to laxatives, a mild laxative about once a week should be given if a diet with plenty of roughage is not enough. Practically all agreed on 5-6 glasses of water daily, and a rest before and especially after each meal.

Mayer, Edgar, and Kugelmess, I. N.: *J. A. M. A.* 93:1856 (Dec. 14) 1929, studying the effect of the Gerson diet in tuberculosis, according to the method of the Sauerbruch Clinic in Munich found that there were favorable results in about 1/3 of the patients. They are not, however, certain of the direct benefit due to the diet alone. They conclude that it is possible that the psychic elements, the enforced rest, the wholesome food, etc., are factors that must be considered in a final analysis.

Boyes, C. R., and White, J. S.: *Brit. J. Tuberc.* 23:75 (Apr.) 1929, ascribe the following attributes to cod liver oil. It has a high food value due to the high percentage of unsaturated fatty acids which are more easily utilized than the saturated compounds in the body process. It also promotes the absorption of other fats. Cod liver oil is a useful vehicle for the administration of vitamin A in tuberculosis, as the vitamin appears to play a part in raising the bodily resistance to infection. It is also a growth promoting factor and promotes calcium metabolism.

Banyai, L.: *Am. Rev. Tuberc.* 23:546 (May) 1931, gives his results with the Sauerbruch Hermannsdorfer Gerson diet. He states that this diet should not be considered as a specific or curative for tuberculosis. He feels that it is only ameliorative in the sense that it stimulates the tissue cells to more intensive vitality and more efficient immunologic response. It cannot substitute but only supplement our standard measures. He found favorable results in 36% of his pulmonary cases and thus feels that the beneficial results found justify the further application of the diet in the treatment of tuberculosis.

Clairmont, P., and Dimtza, A.: *Klin. Wchnschr.* 9:5 (Jan. 4) 1930, giving their observations on the so-called Sauerbruch diet in tuberculosis of bones and joints, state that they noticed a striking and sudden improvement in the general condition of all patients. Within two to three months gain in weight of 20 to 30 pounds was noticed and sinuses dried up and closed rapidly. So far, they feel quite encouraged and urge further and more extensive studies. In the preparation of the food they feel that unusual care and adaptation to individual taste is of paramount importance.

de Raadt, O. L. E.: *Wien. Klin. Wchnschr.* 43:752 (June 12) 1930, suggests that the Sauerbruch's diet finds its usefulness in the production of phenol compounds in the intestines. He feels that with phenol given by mouth the same results can be obtained. Thus he concludes that with a diet rich in vegetable proteins or with phenol medication essentially the same results can be obtained as with diet free from sodium chloride.

Falta, W.: *Wien. Klin. Wchnschr.* 43:148 (Jan. 30) 1930, ascribes the beneficial effect of the Gerson diet to its dehydrating effect, which explains its beneficial action on skin and bone lesions, but since, however, the pulmonary tissue does not contain much sodium chloride, a marked effect on pulmonary lesions would not be expected. He states that the practical results which have been reported are sufficiently encouraging to invite further trials.

All these reports on this Sauerbruch-Gerson diet need further confirmation. J. B. H.-M. J. S.

MISCELLANEOUS

Hawes, J. B. 2nd: *Am. Rev. Tuberc.* 23:306 (Mar.) 1931, deals with the subject of private practice in tuberculosis in a large city. Among the most striking facts he mentions that in a series of 500 consecutive patients nearly one-half or 48.5% came to consult him, either of their own accord or because their employers sent them, and were not referred by any physician.

Again he mentions that 42.5% came of their own accord because they were afraid lest they had tuberculosis, and that 42% of these patients came in an early and at least in a favorable stage of the disease. He feels that this is encouraging evidence that our endeavor to educate the public in the early signs and symptoms of this disease have not been in vain.

Sehrag, E.: *Ztschr. f. Tuberk.* 51:119,1928, finds that pregnancy in the course of tuberculosis has an unfavorable influence only in individual cases, and then mostly in progressive disease. In these cases, and especially those with open tuberculosis, interruption of pregnancy is recommended, but not always in apical tuberculosis. He does not advise sterilization in active tuberculosis because of the possibility of subsequent healing of the lung. In rapidly progressive tuberculosis interruption is without avail. He feels that pregnant tuberculous women should be treated in the sanatorium.

Mayer, A.: *Ztschr. f. Tuberk.* 51:109, 1928, is of the opinion that the diagnosis and prognosis of early pulmonary tuberculosis is still too uncertain to permit a definite decision on the interruption of pregnancy. About equal number of deaths occurred in the author's series following the interruption and non-interference. Of importance in prognosis is the constitution of the patient and the form of tuberculosis, since a favorable type of disease runs a good course without interruption and the unfavorable type a bad course with artificial abortion. He feels that a more reliable diagnosis and prognosis of early tuberculosis is needed in making a decision.

Grabfield, G. P., and Miller, R. H.: *Am. Rev. Tuberc.* 22:598 (Dec.) 1930, advance the theory that apical tuberculosis may be the result of extension from tuberculous tonsils. They found a definite correlation between thickening of the apical pleura and tuberculosis of the tonsils and cervical lymphatics. They feel that this theory is more important in that the current ideas do not seem entirely satisfying in explaining the observed facts.

Krueger, E. T.: *Am. Rev. Tuberc.* 23:93 (Jan.) 1931, studied the interrelation and coördination of the nursing service with welfare organizations. He suggests that a community tuberculosis central program will not be adequate until the social causes as well as the medical causes of tuberculosis morbidity and death rates are more thoroughly dealt with. These causes he also suggests center about economic conditions, housing, family disorganization, occupational strain, the general level of culture in various classes, the traditions of local groups and the general conditions which exist in rural and city populations. He believes that the extension of social case-work for tuberculous families would bring much knowledge to light concerning such factors. He feels that the situation demands a unified and an all-round attack.

Combemale, F., Gernez, C., and Breton, A.: *Ann. d. Med.* 26:480 (Dec.) 1929, review the subject of insulin therapy to fatten non-diabetic tuberculous patients. They conclude that insulin should not be given routinely to all tuberculosis patients. It should not be given to those with active disease, nor to those with unstable temperature, hypotension or a tendency to hemoptysis. It is unwise to give too many courses or to make any one course longer than 15 days to three weeks. They emphasize that close supervision is necessary and treatment should be stopped at once if the least indication occurs. They found that in stable cases insulin generally brings about an increase in weight and a remarkable feeling of well-being, but even in such cases it may cause severe reactivation of the disease.

All this needs confirmation. J. B. H.-M. J. S.

Miller, J. A.: *New Eng. J. Med.* 203:158 (July 24) 1930, attempts to answer the question why so many die of tuberculosis. He believes that the following measures would reduce tuberculosis mortality by one-half in any community. (1) Adequate hospitals and sanatoria to which patients would go. (2) Pasteurization of the milk supply. (3) Scrupulous care on the part of patients with the disease. (4) Better realization of the early signs and symptoms of the disease. (5) Sharpened faculties on the part of medical men toward suspecting the disease.

Some day, perhaps, we will reach this millennium. J. B. H.-M. J. S.

Chadwick, H. D.: *New Eng. J. Med.* 203:64 (July 10) 1930, considers the question of the control of tuberculosis. He is of the opinion that tuberculosis is a liability which need not be carried on indefinitely if we make full use of our knowledge. He believes that tuberculosis should be considered a communicable disease and treated accordingly. He suggests that segregation is possible, thus leaving sanatorium beds for more favorable cases. Other members of the household must submit to x-ray examination. Tuberculin tests and x-rays may have to be furnished by the Health Department. He also recommends that sanatorium admission should be by selection; first those who are the greatest menace at home; second, those most favorable for treatment. X-ray films should be filed with the applications.

Gegetchkori, N., and Gigineischwili, I.: *Ztschr. f. Tuberk.* 54:49, 1929, report 5 cases in which the pulmonary process developed shortly after trauma. They conclude that chest injuries without breaking of the skin or rib fractures can activate latent foci and that the diseased process in the majority of cases develops upon the traumatized side.

Gordon, B., and Cashman, W. M.: *J. A. M. A.* 94:1643 (May 24) 1930, in a follow-up study of 737 present and former sanatorium workers found that the incidence of tuberculosis acquired after termination of service was low (perhaps less than 2%). They add that the subject of hygiene is recognized generally as the most important factor in the prevention of tuberculosis, which is emphasized in the instructions given to nurses on entry in the department.

Olbrechts, E.: *Ann. d. Méd.* 27:429 (May) 1930, points out that the question of etiology of spontaneous pneumothorax is not definitely decided. He cites 29 cases both from the hospital and from the outpatient department. Among the hospital patients there were 10 cases of spontaneous pneumothorax. In 6 the etiologic factor was tuberculosis, and all but one ended fatally; in one cancer was the cause and bronchiectasis was the underlying lesion in another. Both of these ended fatally. There were two so-called idiopathic cases and both got well. Among the outpatients, in 5 tuberculosis was the cause, three recovered, and two died. Chronic bronchitis, cancer and bronchopneumonia were each responsible for one case. There were nine idiopathic cases, all of whom recovered while some subsequently developed clinical tuberculosis. Two other cases of the benign or idiopathic type are presented. Both recovered and neither presented evidence of tuberculosis.

Pinner, M., and Moerke, G.: *Am. Rev. Tuberc.* 22:121 (Aug.) 1930, in an exhaustive laboratory study of pleural effusions find that the normal pleura is highly permeable in either direction for the constituents of the blood. In patients under pneumothorax treatment for pulmonary tuberculosis and with pleural effusions, a marked decrease of the pleural permeability is shown by actual experiments. They find that neither chemical, cytologic, nor serologic data afford, per se, dependable diagnostic or prognostic criteria. They feel that the failure of resorption of pleural effusions cannot be explained by their chemical constitution; it must be due to an alteration in the pleural permeability.

Schneider, L. V.: *Am. Rev. Tuberc.* 22:267 (Sept.) 1930, discusses primary aspergillosis of the lungs. He found that Aspergillus fumigatus is a microörganism which produces pulmonary lesions resembling those of fibroid tuberculosis. Clinical symptoms and x-ray findings are identical with those of chronic pulmonary tuberculosis; it is, therefore, likely that some of the cases are overlooked. He found that the infection is transmitted from pigeons and parrots and is also observed in hair combers who use rye flour to remove grease from the hair. The tuberculin test was of no diagnostic value because aspergillosis gives the same local reaction as tuberculosis. Therapeutically he found that iodide salts are specifically destructive to the life and growth of the aspergillus fungus.

AFTER-CARE

McDougall, J. B.: *Brit. J. Tuberc.* 24:79 (Apr.) 1930, presents a survey of schemes offering remunerative employment for tuberculosis patients. He describes two English and four American workshops. The occupations provided are as follows: firewood making, brush making, painting, leather goods manufacture, needlework, watch repairing, jewelry and cabinet making. He feels that so far the work has been entirely experimental and is thus of value irrespective of the findings.

Jones, P. C. V.: *Lancet*, 218 (Vol. 1): 1143 (May 24) 1930, submits some suggestions as to the development of village settlements for the after-care of tuberculous patients. He feels that patients must be selected who are medically and temperamentally suitable. The medical personnel should receive practical training at a successful village. Remove fear of economic disaster, assure the patient of immediate treatment, that his family will be cared for while he is receiving treatment, and that one permanently disabled may live in a village with his family, and by this means the tuberculosis problem will be altered.

Jones, P. C. V.: *J. State Med.* 37:311 (June) 1929, further states that since the larger number of sanatorium patients die within five years of discharge and a large majority of these within the first two years, the "after-care" of such people becomes an exceedingly important matter. Of the various schemes, he concludes that none is sounder than that of a colony where work can be graduated and the patient gradually returned to a productive basis. A life of routine and illness away from the family is bad for the patient and this objection is met by the colony.

McDougall, J. B.: *Tubercle.* 11:337 (May) 1930, discusses the cost of maintenance and capital expenditure of village settlements. He found that the attempt to create self-supporting communities of the tuberculous compares favorably with other attempts to care for such individuals.

MASSIVE COLLAPSE

Hennell, H.: *Am. Rev. Tuberc.* 23:461 (May) 1931, discusses atelectasis as a factor in fibroid phthisis. He feels that in the so-called "advanced unilateral fibroid phthisis" massive atelectasis of large portions of pulmonary tissue, occasionally involving most of one lung, is probably the essential mechanism of the evolution of the clinical and pathologic condition. In this group of cases the tuberculous process in the lung may be minimal and its clinical significance may become relatively unimportant. He finds that the marked pulmonary fibrosis, which rap-

idly develops after atelectasis occurs, eventually dominates the picture. The tuberculous process may be submerged by the extensive fibrosis, and the bronchiectasis which follows in the wake of the pulmonary fibrosis may determine the clinical features and course in this group of cases. He believes that in the evolution of fibroid phthisis of lesser degree atelectasis involving smaller or larger areas of pulmonary tissue is an important factor.

Koral, E.: *Am. Rev. Tuberc.* 23:493 (May) 1931, finds that atelectasis is of common occurrence in tuberculosis and is responsible for such important signs as contraction of the chest and lung, limited mobility, feeble or absent vesicular murmur and a decreased complemental space. The small lung of tuberculosis with the displaced mediastinum and diaphragm frequently develops in spite of the absence of fibrosis and adhesions. He thinks that it is due to a diminished amount of air in the affected lung and a fall in intrapleural pressure.

Paradoxical breathing may accompany tuberculous disease of the lungs. This he believes is the cause of the characteristic râles of tuberculosis. In many cases this breathing from one lung into the other spreads the tuberculous infection.

Glenn, E. E.: *Am. Rev. Tuberc.* 23:507 (May) 1931, reports seven cases of lobar atelectasis or massive collapse of the left lower lobe, occurring as a complication of pulmonary tuberculosis. Six of these cases were treated by artificial pneumothorax and all have been benefited; in at least two cases the prognosis has been changed from unfavorable to favorable by this treatment. He found that lobar atelectasis when it complicates pulmonary tuberculosis is not difficult to recognize, if the likelihood of its being present is realized. He believes that artificial pneumothorax is the logical treatment for this condition.

Moorman, L. J.: *Ann. Int. Med.* 31:1024 (Apr.) 1930, gives the differential diagnosis of massive collapse and spontaneous pneumothorax. In massive collapse the lung is airless because of bronchial obstruction and absorption of air, with a resultant negative intrapleural pressure, and the mediastinal contents are displaced *toward* the affected side. In pneumothorax the lung is collapsed because of pressure of air in the pleural space. The mediastinal structures are pushed *away* from the affected side, and the diaphragm is displaced downward. He found that artificial pneumothorax treatments will facilitate the reëxpansion of the lung in case of massive collapse.

Morison, J. M. W.: *Brit. M. J.* 3632, Vol. 2; 237 (Aug. 16) 1930, discussing the various theories of the cause of massive collapse, thinks that the evidence is in favor of the theory that spasm of the bronchial musculature is the essential feature of active lobar collapse. There is a reflex disturbance of the sympathetic and vagus innervation of the lungs. He found that the termination of these cases is almost always favorable.

A RADIO MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

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toward the various conditions which hurry men too early into the degenerative processes. When rheumatic fever does not damage the valves of the heart, it does sometimes involve the heart muscle and thus paves the way for the heart to succumb much earlier than it should to the wear and tear of living. No wonder that we are striving to reduce rheumatic fever and we are gratified with our success.

The early recognition of the social diseases and their prompt treatment have done much to prevent their insidious effects upon the circulatory and nervous systems of their victims and thus their lives and the lives of their children are prolonged.

The addition of insulin in diabetes and liver extract in pernicious anemia to the other forms of treatment in these diseases has proved a great boon in the prolongation of life. They must be used in most cases with considerable constancy if the good effects are to be maintained. They have also been of great value in the previously fatal emergencies of these diseases.

Time does not permit an enumeration of many other diseases which, if recognized promptly, can be successfully treated—or better still, prevented—such as epidemic cerebrospinal fever, hydrophobia, tetanus or lockjaw, erysipelas and others too numerous to mention. In the old days, lying-in hospitals expected to have many cases of childbirth fever, and that surgeons would find pus in the wounds of their operations, but the modern obstetrician and surgeon feel disgraced when such complications arise. They do occur occasionally under apparently the best conditions, but they are fortunately becoming rare. Maternal mortality is tremendously reduced and the mother is spared to her family.

In the numerous lectures and radio talks which are being given to the public on health matters, the main object is to secure your help in the early recognition of the diseases which may afflict you and the members of your family. The most important time in a fire is the first five minutes. So it is in disease. If life is to be prolonged, the early signs must be recognized before the fire of disease is raging and destroys the body. Find out what pain or discomforts to which you are unaccustomed mean. If taken early a disease may be eradicated before it can do much if any harm and you can go on living comfortably. If the symptoms mean nothing, so much the better, for you will then have peace of mind, which is worth a great deal.

Case Records

ANTE-MORTEM AND POST-MORTEM

AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

AT THE

MASSACHUSETTS GENERAL HOSPITAL

Published under the direction of

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VOLUME XVII

1931

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CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 17531

THREE MONTHS' DIARRHEA IN A NEUROTIC PATIENT

MEDICAL DEPARTMENT

A married New England woman seventy-seven years old entered June 4 complaining of movements of the bowels five times a day during the past three months and a half. She was a very neurotic, apprehensive old lady whose history was full of inaccuracies.

Thirty-three years before admission she had her first attack of right upper quadrant pain radiating to the right shoulder and lasting three hours. Following this she had frequent attacks of sour eructations and a feeling of epigastric fullness. Twenty-six years before admission she had a serious fall and was in bed for two months. Her weight fell to 92 pounds. She had some gastro-intestinal symptoms, flatulence, a feeling of fullness and a sour taste in her mouth. At the same time she began to pass urine frequently and in small amounts. A diagnosis of ptosis of the kidney was made and operation was done. Following this she was given cod liver oil until she weighed 123 pounds. She changed doctors and during the next three years had her weight reduced to 112 pounds. Twenty years before admission she began to have pain in the right hip radiating to the right side. Two years after its onset she was operated upon and the liver "was found adherent to the hip". After that operation she felt better. Fifteen years before admission she had another bad fall and sustained a right inguinal hernia. Two years later she nearly died of influenza. Seven years before admission she had her left hip injured in an automobile accident. During the same year she was operated upon for hemorrhoids. Two years later she was in another automobile accident and injured her right hip and knee. She had hydrarthrosis of the right knee for three months. Three years before admission she began to have discomfort over the "colon area" with a sour taste and flatulence. Since that time she had had soreness in the right upper quadrant. Twelve months before admission she noticed a feeling of discomfort high up in her rectum after defecation. For the past year she had had slight edema of the feet. Her right kidney was x-rayed and found negative. Eleven months before admission she had tonsillectomy and adenoidectomy. Three months and a half before admission she began to have bowel movements four to six times a day, not watery, tarry or bloody. There was a small amount of mucus. She had a feeling of rectal discomfort after each movement. Nocturia, which had been present four or five times a night for six years, now increased to five or six times at night, with severe burning. The urine was sometimes red. Three months before admission x-ray examination with a barium meal and barium enema was made by a well-known radiologist. Everything was negative except for colitis. During the past three months she had had polyuria every fifteen minutes about twice a week relieved at once by sodium bicarbonate and heat over the bladder. She noticed that she urinated more at night than during the day. There had been definite loss of control of both the urethral and rectal sphincters. She had had tingling or numbness in her extremities. During the past three months she had gradually lost strength and weight and had had very marked loss of appetite. She did not drink much water because it aggravated the polyuria. During the past eleven weeks she had been on a colitis diet.

There is no history of familial disease. Her father died at forty-one of tuberculosis.

Clinical examination showed an underdeveloped, undernourished, wizened old lady weighing 75 pounds. The skin was pale, loose and wrinkled. The mucous membranes were of fair color. The heart was normal. The blood pressure was 92/58 to 75/45. The lungs showed slight dullness at both apices posteriorly with a few crepitant râles after cough. The abdomen showed a large, very tender postoperative hernia reducible with much gurgling (colon?). There was a palpable mass in the epigastrium extending about three fingerbreadths below the costal margin (distorted liver?). The pupils were equal, slightly irregular and reacted sluggishly to light and accommodation. The extremities and reflexes were normal.

The urine was normal in amount, the specific gravity 1.014 to 1.018. There was the slightest possible trace of albumin at all of three examinations. The sediment showed 5 to 50 leukocytes at all examinations, rare red cells at one. Blood examination showed 6,450 to 14,300 leukocytes, 76 to 71 per cent polynuclears, hemoglobin 55 per cent, reds 3,860,000 to 4,340,000, slight to moderate achromia and slight variation in size and shape in both of two smears, rare stippled cells once, platelets slightly decreased. The stools were negative to guaiac at all of four tests. All four specimens showed mucus. One showed pus.

The temperature was 98° to 103.8° with wide daily swinging, maximum often in the morn-

ing. The pulse was 80 to 130, also often with wide swinging. The respirations were not remarkable.

At x-ray examination with a barium enema the barium passed to the ascending colon without appreciable delay. The cecum and the descending colon were rounded and surrounded by the palpable mass. This part of the colon was rigid and irregular. The terminal ileum filled readily however. There was a localized constriction measuring two centimeters in the transverse colon just to the right of the vertebrae. This appeared to change in shape but was fairly persistent in localization. The remainder of the colon was small and smooth. The patient could not retain the enema until satisfactory films were taken, and the cecum and colon could not be distended for further study. A chest film showed the diaphragm low. There was homogeneous dullness in both apices, more extensive on the left, probably due to old tuberculosis, probably in the pleura. There were calcified glands at the left lung root. The heart shadow was small and of the drop type.

A surgical consultant felt that against the x-ray evidence should be balanced the persistent diarrhea. He advised against major operation but was willing to explore if the medical men and the patient wished it. He considered her a poor risk.

During a month's stay in the hospital the patient gradually grew weaker and weaker. The diarrhea continued. On July 6 she died.

Clinical Discussion

BY RICHARD C. CABOT, M.D., AND GEORGE W. HOLMES, M.D.

NOTES ON THE HISTORY

Dr. Cabot: You can guess as well as I can what "the liver was found adherent to the hip" means. I suppose it was a gall stone operation, in which everything is generally found adherent to everything else, but more than that I cannot guess.

NOTES ON THE PHYSICAL EXAMINATION

Dr. Holmes: This patient showed a striking variation from normal in the colon and some abnormalities in the chest. There is dullness at both apices with retraction of the apices and some thickening of the markings. That is rather characteristic of tuberculosis with fibrosis. The heart shadow is small and of the drop type. The lung fields are clear except at the apices and the diaphragm is rather low.

When the colon was examined the patient had difficulty in retaining the enema. We find that this usually means disease of the bowel. If the patient is properly prepared we rarely have difficulty in getting an enema into a normal bowel. Such difficulty usually means ulcerations, either carcinomatous or benign. On these films no part of the colon appears normal. The examiner states that the colon in the region of the cecum and descending colon was narrowed and that a mass could be felt around it. The cecum is seen only as a tube with irregular margins. The transverse colon is very small and rather irregular. The ileum is partially filled. So that in spite of the apparent narrowing of the cecum, part of the meal has gone into the terminal ileum. There is no evidence of true obstruction of the type we expect to find in cancer. Such an appearance as this is likely to be due to some form of ulcerative colitis. There is marked spasm of the whole bowel with possible areas of constriction and difficulty in retaining the enema with evidence of tuberculosis in the lungs. It seems to me that tuberculous colitis with an infiltrating lesion around the cecum would be the most reasonable diagnosis.

Dr. Cabot: Of course common ulcerative colitis does not ordinarily give so much fever as she has. The fact that she has fever seems to me to be in favor of what Dr. Holmes has said to you about the tuberculous origin of the disease. There is no evidence of perforation or abscess outside the bowel, is there?

Dr. Holmes: No.

DIFFERENTIAL DIAGNOSIS

Dr. Cabot: It seems to me the two things we have to think of are cancer and tuberculosis. I favor tuberculosis because of the fever, the absence of any evidence of obstruction, and because she apparently has evidence of old tuberculosis at her apices. I do not know enough about x-rays of the bowel to say this could not be simply an old chronic ulcerative colitis, but as I say, I have never seen so much fever in a case like that so long as the bowel was unperforated. So on the ground of the fever I am supposing this to be tuberculous.

A Student: Can you have ulcerative colitis in the absence of blood?

Dr. Cabot: No; that is another point against colitis of the ulcerative type. We often have blood and pus also in tuberculous colitis. I do not quite see why she does not have blood and pus.

A Student: How about the urinary symptoms?

Dr. Cabot: We certainly ought to say something about her kidney. It looks as if there were some limitation of gravity. We do not know that that is so. The test was not made especially for that. She had albumin. We do not know about the non-protein nitrogen or about the renal function. She might however perfectly well have had chronic nephritis from what is set down here, and the colitis might be secondary to that; but then I do not see why

there should be so much fever. We do not expect that secondary to chronic nephritis. We must leave the question of nephritis open then in the absence of a more complete examination of the urine and the blood.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Carcinoma of the colon.

DR. RICHARD C. CABOT'S DIAGNOSIS

Tuberculosis of the intestine.

ANATOMIC DIAGNOSES

1. *Primary disease.*
   Tuberculosis of the lungs, the ileum, the large intestine and the peritoneum.
2. *Secondary or terminal lesions.*
   Perforation of a tuberculous ulcer of the terminal ileum, with localized fibrinopurulent peritonitis.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: We found very extensive tuberculosis of the large intestine. The cecum was most markedly involved, the ascending colon somewhat less, then the transverse colon still less, and the descending colon on the whole the least. There were however lesions throughout the entire length of the large intestine. The usual distribution in ulcerative colitis is the opposite; the involvement is progressively less as one approaches the cecum. The process also extended throughout the terminal ileum. The last foot of the ileum showed four very big tuberculous ulcers, one of which had perforated and had given rise to a very localized purulent peritonitis. There was a more or less generalized tuberculous peritonitis. There was a well-marked pulmonary tuberculosis with lesions at both apices, most of them not very active. The activity in this case seemed to be confined to the peritoneal cavity and the intestinal tract.

The possibility of very active tuberculosis in elderly people is something that is often overlooked. It is ordinarily considered a disease of young people; but we see here every year from two to five cases of fulminating tuberculosis in people of sixty or more. There is no age that is immune to tuberculosis.

CASE 17532

REPORT OF A CASE OF BILATERAL POLYCYSTIC KIDNEY

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. OTTO C. YENS*: This is a fifty year old married Irish housewife who came into the hospital with hypertension of five years' duration, four months' swelling of the ankles and three weeks' burning on micturition as chief complaints.

During the past five years the patient had known she had high blood pressure with headaches and tinnitus. She had had occasional diplopia and epistaxis. She also said she had had several attacks of "nephritis" at various times, but although she had generalized edema with one attack there was never any noticeable hematuria. Two years ago she was treated at a hospital for a questionable "shock" and cardiac decompensation secondary to hypertension. She was put on digitalis. She did fairly well until six months ago, when she had left hemiparesis following a "shock". This cleared up in the course of the next three weeks. Four months ago she sprained her right ankle and developed local heat, swelling and redness. Three weeks later she developed the same condition in the other ankle. The symptoms were relieved by salicylates, but recurred whenever the weather was bad. She also had frequent sore throats during this time. Two months ago she developed pain in the calves of her legs and back muscles with some increase in her headaches, all relieved by aspirin. She definitely lost her appetite and strength until three weeks before entry, when she had some dysuria with nocturia three or four times every night. Two weeks ago she began having severe night sweats. One week ago she developed daily chills with fever and sweating and some increase in her chronic cough. Her ankles became definitely more swollen. She lost 14 pounds in two months. She had no vomiting. Her bowels were normal.

Twenty-eight years ago she had an operation for hernia. Twenty-five years ago she was operated on for floating right kidney after one or two years' symptoms of Dietl's crisis. Twelve years ago she had fever and chills for two weeks with a question of pyelitis. Ten years ago she was six weeks in a hospital with left sided abdominal pain associated with a temperature of 106°. No diagnosis was made. In general, she had had a good deal of trouble with her kidneys practically ever since she could remember. A year before admission she had asthmatic attacks.

Her family history and marital history are negative.

Physical examination showed a fairly well developed but emaciated elderly woman in no acute distress. The skin was pale, hot and dry, the face slightly flushed. The lips were cyanotic. The sclerae were injected. The pupils were irregular but reacted normally. The tongue was coated and moist. It deviated to the right. The chest was markedly barrel shaped. The heart was enlarged to the left. The apex impulse was

*Recently senior interne on the West Medical service.

visible and forceful. The rhythm was regular. The sounds were loud and rough, the second sound very loud and rough at the apex and ringing at the aortic area. There was a rough apical systolic murmur. The blood pressure was 195/110 at entrance, later 145/60 to 215/105. The peripheral vessels were definitely sclerosed but collapsible. The right lung showed coarse crepitant and sonorous râles below the scapula. There were numerous crepitant râles at the left base anteriorly and posteriorly. There were increased breath sounds over the upper right lung root. There was no area of dullness. The liver was palpable one fingerbreadth below the costal margin, not tender. There was a large mass in the right flank, possibly the right kidney, extending from the crest of the ileum to the costal margin, soft, smooth, movable, not particularly tender. The spleen, with a questionable notch, could be felt deep under the left costal margin, movable on palpation but not with respiration. There was slight tenderness in the left lower quadrant, where fecal masses could be felt. There was a large right sided linear scar below the costovertebral angle. There was slight pitting edema below the knees with some tenderness. Both ankles showed limitation of motion. The right knee jerk was greater than the left. There was questionable right Babinski, slight right-sided facial palsy and weakness of the right grip.

She had a leukocytosis of about 17,000 when she came in, increasing gradually during her stay in the ward until it was 40,000 during the last week. The urine showed a large amount of albumin, large numbers of white cells and occasionally some red cells and casts. The nonprotein nitrogen was about 50 when she came in and remained elevated, finally going up to 98. The stools were negative.

In the ward she was drowsy a good deal of the time. She could not keep anything down. Nourishment and fluids had to be given chiefly by clysis. She was studied from the urological point of view. Her general condition steadily failed. She died on October 17 without definite convulsions.

Dr. George W. Holmes: We have a bilateral pyelogram which shows a rather characteristic picture of polycystic kidneys. The calices are deformed and show evidence of pressure from outside. The fact that the condition is bilateral rather rules out malignancy and makes one suspect the condition is cystic. On the other film there are quite distinct shadows on the right side, less distinct ones on the left due to calcification in the walls of the cysts. They are not so dense as stones usually are, and the distribution is rather different from that of stones. With these two pictures we have enough evidence to make a definite diagnosis of polycystic kidneys.

Clinical Discussion

Dr. J. Dellinger Barney: In regard to polycystic kidneys in general I may say that we see them not very uncommonly and at various ages, but especially, I think, in young adult life. So far as I know they do not give symptoms until one reaches that time of life. I have seen various symptoms associated with them, not only uremia such as this woman had, but also hematuria and pain and calculi. I have never seen a new growth in a polycystic kidney. The diagnosis is not always easy, especially where the pelvic deformity is not so marked as in this case. Also there are cases apparently where the polycystic features are much more marked on one side than the other, although I believe both are always affected. A stone can form in a polycystic kidney. I have one man who may have been nearly fifty at the time I operated for stone. I made a diagnosis before operation of polycystic kidney. I took out the stone and just for the interest of doing it more than anything else, tapped a few of the cysts on the kidney. It was interesting to find that the whole kidney seemed to consist of cysts, like a cluster of soap bubbles. He made a very good recovery. He eventually got considerable infection of one or both kidneys, but he is now in perfect health, has had no more symptoms of stone, and is approaching sixty. I think that is an unusually long time for a patient to live with polycystic kidneys, especially when complicated by stone.

Another case is that of a young man of thirty with hematuria who subsequently died for the same reason this woman did, from gradual deterioration of the kidney tissue, uremia and so on.

Usually one cannot resort to any surgical measures in these cases simply because there is no kidney tissue to take out. There is not much to do except perhaps to take purely palliative measures such as tapping an infected cyst or taking out a stone. From the surgical standpoint these cases do not offer many possibilities.

Clinical diagnoses (from hospital record)

Polycystic kidneys.
Uremia.

Anatomic diagnoses

Polycystic kidneys.
Cysts of the liver.
Hypertrophy of the heart.
Arteriosclerosis.

Pathologic Discussion

Dr. Tracy B. Mallory: This case proved to have polycystic kidneys as we expected.

Dr. E. Ross Mintz: The diagnosis in this

case was rather evident. She had a bilateral pyelogram which was very suggestive of the disease. Intravenous indigo carmine appeared from the right kidney in 17 minutes, from the left in 22 minutes, and was never concentrated. Masses were felt on both sides.

DR. JAMES H. MEANS: I should like to ask one question about the character of the breathing in this patient. We had a similar case, a patient who had most remarkable hyperpnea just before death. Did this patient have hyperpnea?

DR. YENS: Yes, she did.

DR. MEANS: Our patient was breathing as though he had just been running up five flights of stairs. He kept that up for several days.

DR. YENS: The respirations were deep and rapid during the last two days.

DR. MALLORY: Was the carbon dioxide combining power down in your case, Dr. Means?

DR. MEANS: Before alkali was given it was 12 volumes per cent. After alkali it went up to 37 volumes per cent.

DR. MALLORY: This picture of the pair of kidneys is pretty characteristic. The one on the left contains a relatively small number of large cysts. There is one huge cyst close to the aorta. The kidney on the right shows a much larger number of more uniform cysts. But in neither kidney is there any useful renal tissue left at all.

It is a very common but by no means invariable thing to find cysts in the liver in these same cases. This one shows numerous small cysts on the inferior surface. I do not know exactly what proportion of these cases of polycystic kidneys shows cysts of the liver, but the percentage is a significant one, something like 20 or 25. There are also occasional cases in which there is marked cystic degeneration of the pancreas along with the kidney and liver. Any theory of the local origin of the disease, malformation of the kidney alone, comes up against a rock in connection with these liver cysts, because no theory dependent on the failure of the collecting tubules to connect up with the glomeruli can possibly explain why the liver should very often have cysts too. It is rather characteristic that when one organ in the body becomes cystic others are apt to be too. The coincidence of liver cysts and renal cysts is but one instance. Coincident cerebellar cysts and pancreatic cysts have been described by Lindau.

DR. BARNEY: Is there any connection that you know of between polycystic kidneys and a kidney with a solitary cyst at either the upper or the lower pole?

DR. MALLORY: I think not. The solitary cysts are seen with some regularity in older people and usually those kidneys will show some degree of atrophic change, usually a vascular nephritis.

DR. BARNEY: I refer particularly to cysts seen surgically. I recall one the size of a small grapefruit that I removed from a man of forty. It was a question simply of removing the walls of the cyst close to where they sprang from the kidney. He made a good recovery and had no recurrence. This was some years ago. In other words there was no urinary secretion apparently from the walls of the cyst or from the kidney surface. It has healed up. That is the end of it. I do not know that they recur or that I have seen one that has done it. I wonder if there is any embryological similarity between multiple and solitary cysts.

DR. MALLORY: I think there is not supposed to be.

DR. CHESTER M. JONES: The left ureter in the x-ray in this case seems to be kinked.

DR. BARNEY: I think not. That kink would probably straighten out if the patient were in a different position. If you looked at the ureter from another angle, say laterally, instead of from the anteroposterior angle you would perhaps find no kink at all.

DR. HOLMES: Yes. X-ray may make a loop look like a partial kink if you get the right angle.

DR. JONES: This patient was operated on some years before for Dietl's crisis probably due to a kinked ureter. That operation was not done here.

DR. YENS: She had a dropped kidney sewed up.

DR. JONES: Yes, but she was supposed to have a kink in the ureter at that time.

DR. BARNEY: At that time everybody was operating on every kidney that could be felt or that was in the least movable. It is probable that this one may have moved a little more than is usual. It is possible also that the crises at that time were due to an infected cyst.

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SCHIZOPHRENIA

THE disease which offers more complications to the psychiatrist than any other psychosis at the present time is schizophrenia, commonly called dementia precox. Often beginning early in life, patients with this disease require prolonged treatment in hospitals for mental disease and therefore form a large part of the population of our state and private institutions. So little is known about the disease, moreover, that after the initial period, when patients are acutely ill, treatment consists merely in custodial care. Although the schizophrenic disorders have been accurately described in detail since the end of the 19th century, little has been learned in regard to their actual causation. A few advances, however, point to a disturbance at the physiologic level of integration and there are many clinical signs suggesting endocrine deficiency, especially of the gonads. These observations are also demonstrated in the x-ray changes noted in the gastro-intestinal tract, in that at least 70 per cent. of the patients show pathologic changes in the motor functions of digestion. The presence of catatonic stupor, so characteristic of this disease, suggests also that there may be a toxic agent as the etiologic factor. Research points, in addition, to a definite constitutional deficiency in the vascular system in schizophrenia. The average dementia praecox heart is found to be at least one-third less than the normal in weight and the aorta is often thin and of small diameter. The physical constitution of this large group of patients shows marked deviation from the normal, and definite types are observable, quite different from those seen in personality disorders such as manic-depressive psychoses.

These and many other interesting observations on schizophrenia have been carefully summarized by Dr. George W. Henry, Director of Clinical Research at the Bloomingdale Hospital, White Plains, New York, in a second edition of his book on the "Essentials of Psychiatry."* He found himself unable, however, to state that the physiologic changes are the result of psychologic or pathologic factors, or vice versa. It seems probable "that whatever group of forces there may be which initiates a schizophrenic process, there are always changes at both the psychologic and physiologic levels of integration, that a vicious circle is established and that until we learn how to approach the illness also at the physiologic level of integration schizophrenia will continue to be a grave illness".

In addition, Henry notes that the psychiatrist is often held responsible for the slow progress made in dealing with this disease, but as a matter of fact, society has as yet made practically no provision for the study of these illnesses. Although schizophrenia is a greater social menace than any other illness, the average citizen has scarcely heard of it and legislatures provide adequate funds for the mere food and lodging of the mentally ill. Until this is remedied progress in the study of this disease cannot be expected.

*Henry, George W. Essentials of Psychiatry. Baltimore: The Williams & Wilkins Co., 1931. xiv + 304 pages.

THE APPENDICITIS MORTALITY

WITHIN a comparatively short time after it became known that operations for appendicitis, if done early or in the interval between attacks, were usually successful, surgeons reported series of operative cases with a very low mortality. We remember that one surgeon reported (orally) five hundred operations for this disease with no mortality.

Now conditions have changed either with the virulence of the disease, the behavior of the patient or the attitude of physicians, for there is evidence tending to show that the mortality due to appendicitis is higher than it was twenty or thirty years ago.

It is estimated that in New York City the death rate has increased about forty per cent.

being at the present time an average of one death in every twenty cases.

A survey in Philadelphia sustains the opinion expressed by the New York City Department of Health and the conclusion reached is that delay in operating and the use of laxatives by the laity account in large measure for this greater mortality.

In Philadelphia, placards are displayed warning the people against the use of laxatives if there is reason to suspect appendicitis. The New York Department of Health endorses this publicity. The importance of early resort to a competent surgeon in cases of abdominal pain should be a part of every educational campaign relating to health. Human nature seems to be prone to forget the lessons of the past and gamble with death. We should include appendicitis in the radio programs.

THE CHIROPRACTIC INITIATIVE

ALTHOUGH the law requires the signatures of but twenty thousand registered voters on a petition of initiative, the chiropractors recently filed one with the office of the Secretary of State of Massachusetts with sixty thousand signatures. They were obtained as follows in the several counties:

Barnstable, 248; Berkshire, 1751; Bristol, 3741; Essex, 9200; Franklin, 1367; Hampden, 4349; Hampshire, 1163; Middlesex, 17,800; Plymouth, 4715; Worcester, 7150; Suffolk, 7338; and Norfolk, 1959.

The cities and towns were represented as follows:

Pittsfield, 1136; New Bedford, 1800; Taunton, 1049; Amesbury, 914; Gloucester, 1007; Lawrence, 1536; Lynn, 766; Newburyport, 1400; Orange, 540; Holyoke, 1706; Springfield, 1326; Fitchburg, 1166; Worcester, 3394; Leominster, 378; Ware, 373; Cambridge, 700; Everett, 1819; Lowell, 2753; Marlboro, 2022; Medford, 700; Melrose, 700; Newton, 700; Somerville, 1100; Waltham, 1450; Woburn, 600; Quincy, 1100; Brockton, 1900; and Boston, 7000.

This survey of the petition will give the general public a very good idea of the intention of the chiropractors to locate in these places. The canvassers undoubtedly obtained many signatures from individuals who will not vote in favor of the petition. It must be admitted that physicians in these several cities could have obtained many more signatures in opposition to a change in the statutes if they so desired.

We are not dismayed or even depressed by the problem which confronts us. The present requirement of one standard to determine the qualification of fitness to practice the healing art in this State has been attacked.

The approval of chiropractic methods in Massachusetts now rests with the citizens of this Commonwealth. The medical profession will, as in other public health fields, present the facts. The final decision will be a demonstration of approval or repudiation of scientific medicine.

If intelligent study can be brought to bear on this subject there will be a satisfactory answer. It is of vital importance that the medical profession should act unanimously, not by reason of selfish interest, but because of its responsibility in leadership in public health education.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

MCCANN, JAMES C. A.B., Ph.D., M.D. Harvard University Medical School 1924. Surgeon, Fallon Clinic and St. Vincent Hospital, Worcester, Mass. Address: Slater Building, Worcester, Mass. Associated with him is:

DUMPHY, JOHN J. A.B., M.D. Harvard University Medical School 1921. Physician, Fallon Clinic and St. Vincent Hospital, Worcester, Mass. Address: 101 Coolidge Road, Worcester, Mass. Their subject is "Syphilis of the Stomach." Page 1273.

DAFFINEE, RALPH W. A.B., M.D. Harvard University Medical School 1928. On staff, Out-Patient Department, Massachusetts General Hospital. Address: 270 Commonwealth Avenue, Boston. Associated with him is:

GRZEBIENIOWSKA, EULALIA F. A.B. Technician, Spinal Fluid Laboratory at the Massachusetts General Hospital. Address: Massachusetts General Hospital, Boston. Their subject is "The Takata-Ara Test on Spinal Fluid." Page 1277.

MINTZ, E. ROSS. M.D. Université de Paris 1928. Resident, Urological Service, Massachusetts General Hospital. Address: Massachusetts General Hospital. Associated with him is:

STEWART, JOHN D. A.B., M.D. Harvard University Medical School 1928. Surgical Resident, Massachusetts General Hospital. Address: Massachusetts General Hospital. Their subject is "Unusual Renal Anomalies: Cases of Renal Agenesis, Unilateral Congenital Renal Hypoplasia and Crossed Renal Dystopia." Page 1282.

BROWN, PHILIP KING. A.B., M.D. Harvard University Medical School 1893. Medical Director, Southern Pacific Railway Hospital, San Francisco, Calif. Founder and Director, Arequipa Sanatorium for care of tuberculosis in wage earning women. Formerly President, California Tuberculosis Association and Vice-President, National Tuberculosis Association. His subject is "Organized Medicine's Interest in a Health Insurance Plan for Small Wage Earners." Page 1285. Address: 909 Hyde Street, San Francisco, California.

HAWES, JOHN B. 2ND. A.B., M.D. Harvard University Medical School 1903. President, Boston Tuberculosis Association, and Cosmopolitan Medical Club. Director, Massachusetts Tuberculosis League and the National Tuberculosis Association. Address: 11 Marlboro Street, Boston. Associated with him is:

STONE, MOSES J. M.D. Tufts College Medical School 1921. Formerly on the Staff in the Tuberculosis Department, Massachusetts State Infirmary, Rutland and Westfield State Sanatoria. Now, Examiner in the Tuberculosis Clinics, Boston Health Department. Visiting Physician, Massachusetts Memorial Hospitals, Chest Clinic, Out-patient Department. Assistant in Medicine, Beth Israel Hospital and Instructor in Diseases of the Chest, Boston University Medical School. Address: 11 Marlboro Street, Boston. Their subject is "Progress in Tuberculosis." Page 1292.

MASSACHUSETTS LEGISLATIVE NOTES

The Department of Public Welfare has submitted several recommendations for legislative action as follows:

1. Establishing a fee of $5 for the licensing of maternity hospitals as defined in House bill No. 143.
2. Establishing a fee of $2 for licensing boarding homes for infants, House bill 144.
3. Establishing a fee of $2 for licensing boarding houses for aged persons, House bill 145.

House bill No. 67 under the petition of Edward J. Kelley of the Department of Public Health provides for dealing with rheumatism and kindred ailments as follows:

An Act directing the Department of Public Health to provide for the Care and Treatment of Persons suffering from Rheumatism and Kindred Ailments.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Section 1. The department of public health, hereinafter called the department, is hereby authorized and directed to formulate a plan for the care and treatment of persons suffering from rheumatism and allied chronic conditions, with a view to taking any necessary initial steps toward the establishment of necessary hospital facilities for such care and treatment by the construction of new hospital buildings, by the use of existing buildings, or by additions to existing buildings. The department shall, as soon as practicable, submit such plan to the governor and council for approval.

Section 2. The department shall establish and organize, with the coöperation of municipalities, local physicians, or other appropriate agencies, clinics in such parts of the commonwealth, as well as in any hospital authorized in section one, as it may deem advantageous to the public health; said clinics shall be conducted to aid in the diagnosis, treatment and prevention of rheumatism and allied chronic conditions, and in educating the public in regard to the control of the same diseases.

House bill 136 is an act relative to subsidies to cities and towns for tuberculosis cases as follows:

An Act relative to Subsidies to Cities and Towns for Pulmonary Tuberculosis Cases.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Section seventy-six of chapter one hundred and eleven of the General Laws, as amended by chapter two hundred and eighty-four of the acts of nineteen hundred and twenty-six, is hereby further amended by inserting after the word "subsidy" in the eleventh line the following:—unless it maintains a program for tuberculosis prevention and control which at least meets the required standards, which the department is hereby authorized to establish and from time to time alter, amend or abolish, nor,— so as to read as follows: *Section 76.* Every town placing its patients suffering from tuberculosis in a county, municipal or incorporated tuberculosis hospital in the commonwealth, or in a building or ward set apart for such patients by a county, municipal or incorporated hospital therein, shall be entitled to receive from the commonwealth a subsidy of five dollars a week for each patient who has a legal settlement therein, provided that such patient is unable to pay for his support, and that his kindred bound by law to maintain him are unable to pay for the same; but a town shall not become entitled to this subsidy unless it maintains a program for tuberculosis prevention and control which at least meets the required standards, which the department is hereby authorized to establish and from time to time alter, amend or abolish, nor unless, upon examination authorized by the department, the sputum of such patient be found to contain bacilli of tuberculosis, nor unless the hospital building or ward be approved by it, and it shall not give such approval unless it has by authority of law, or by permission of the hospital, full authority to inspect the same at all times. The department may at any time withdraw its approval. In the case of hospitals having a bed capacity which, in the opinion of the department, is in excess of the number of beds needed for the localities which these institutions serve for patients exhibiting tubercle bacilli in their sputum, the subsidy above provided shall be allowed for such patients not exhibiting tubercle bacilli in their sputum as, in the joint opinion of the superintendent or medical director of the institution and of a member of the department designated by the commissioner, are bona fide cases of pulmonary tuberculosis and have been in the institution more than thirty days.

House bill 138 provides for investigation relative to laws dealing with food and drugs:

Resolve providing for an Investigation by a Special Commission relative to the Adequacy and Administration of the Laws relating to Food and Drugs.

Resolved, That an unpaid special commission, to consist of one member of the senate to be designated by the president thereof, three members of the house of representatives to be designated by the speaker thereof, and three persons to be appointed by the governor, is hereby established for the purpose of making a thorough study and investigation relative to the adequacy and administration of the laws of the commonwealth relative to the manufacture and marketing of food and drugs, including milk and milk products, and shellfish, as well as the laws under which liquor, narcotics and chemical substances are examined in the food and drug laboratory of the department of public health. Said commission shall be provided with quarters in the state house or elsewhere, may hold hearings, and shall avail itself of such information and records on matters under consideration as are available in the various state departments. Said commission may expend in the discharge of its duties such sums not exceeding in the aggregate five thousand dollars as may hereafter be appropriated and shall report to the general court its findings and its recommendations, if any, together with drafts of legislation necessary to carry such recommendations into effect by filing the same with the clerk of the senate on or before the first Wednesday of December in the current year.

MISCELLANY

MORTALITY RATES

Telegraphic returns from 82 cities with a total population of thirty-six million for the week ending December 5, indicate a mortality rate of 10.8 as against a rate of 11.8 for the corresponding week of last year. The highest rate (19.0) appears for San Diego, Calif., and the lowest (3.8) for Yonkers, N. Y. The highest infant mortality rate (11.1) appears for Washington, D. C., and the lowest for Long Beach, Calif., Miami, Fla., San Diego, Calif., Schenectady, N. Y., Seattle, Wash., Springfield, Mass., Tacoma, Wash., Utica, N. Y., Wilmington, Del., and Yonkers, N. Y., which reported no infant mortality.

The annual rate for 82 cities is 11.8 for the forty-nine weeks of 1931, as against a rate of 11.9 for the corresponding weeks of 1930.

CORRESPONDENCE

SMALLPOX IN PARIS AS OBSERVED BY DR. WOODWARD

Editor of the *New England Journal of Medicine*,

The statement in the *Journal* that Paris is now one of the best vaccinated municipalities in the world brings back to my mind a visit made in 1881 to the Hôpital des Infants Malades behind the Invalides, the largest children's hospital in Paris at that time.

A member of the staff took his students through the wards. In one devoted to diphtheria and scarlet fever, the scarlet fever cases were ranged along one side of a narrow ward, the diphtheria cases along the other. Reaching a door at the end, the professor stopped and casually remarked that if any of us had not been vaccinated they had better go no farther and without further ado opened the door on the other side of which was the smallpox ward filled with patients. After inspecting these we returned through the other ward down the corridors and into the open air.

I had just come from Vienna where smallpox patients appeared almost daily in Hebra's and Kaposi's Clinics, stripped, walked around the amphitheatre and were freely handled by the assembled students before they were relegated to the smallpox hospital. Consequently, the tender consideration of the French professor for the unvaccinated impressed me greatly.

The "world do move" in Europe at any rate.

Sincerely yours,
SAMUEL B. WOODWARD.

December 16, 1931.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Ill.,
December 24, 1931.

Managing Editor, the *New England Journal of Medicine*,

In addition to the articles enumerated in our letter of November 28 the following have been accepted:

Ciba Co., Inc.
Tablets Dial—Ciba, 0.03 gm. (½ grain)

Clinadol Co., Inc.
Clinadol Co.'s Cod Liver Oil Concentrate

Lederle Laboratories, Inc.
Surgical Maggots—Lederle

Wm. S. Merrell Co.
Fibrogen Local—Merrell
Fibrogen Local—Merrell, 7 cc. vials

G. D. Searle & Co.
Gold Sodium Thiosulphate—Searle
Ampules Gold Sodium Thiosulphate—Searle, 1 cc.
Ampules Gold Sodium Thiosulphate—Searle, 2 cc.
Ampules Gold Sodium Thiosulphate—Searle, 5 cc.

E. R. Squibb & Sons
Thromboplastin Local—Squibb
Thromboplastin Local—Squibb, 20 cc. vial.

The following article has been exempted and included with the List of Exempted Medicinal Articles (New and Non-official Remedies, 1931, p. 477):

Lederle Laboratories, Inc.
Fluid Extract of Ergot (Lederle).

Yours truly,
W. A. PUCKNER, *Secretary*,
Council on Pharmacy and Chemistry.

COÖPERATIVE EFFORT IN PREVENTIVE MEDICINE

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

December 21, 1931.

Editor, *New England Journal of Medicine*,

While it is quite generally agreed that the objectives of health departments and practicing physicians are fundamentally the same, there are frequently apparent conflicts in the methods of obtaining these ends. As an example of a financially sound way in which a practitioner may coöperate with a health department, I am enclosing a copy of a letter from Dr. Downey which he has kindly given me permission to publish. I am also enclosing a copy of the card to which he refers. This was made up at the suggestion of Dr. Rubin of the Boston School Department, and yet I understand that Dr. Rubin was disappointed with its limited use.

If more physicians from their practical experience would suggest to health departments methods of coöperation and when these are worked out if more physicians would make use of them, perhaps many of the apparent misunderstandings might be done away with.

Cordially yours,
GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

A COPY OF THE CARD REFERRED TO ABOVE

Commonwealth of Massachusetts
Department of Public Health

Preventive Medicine from Your Family Physician

Child Health and Protection can be greatly increased if all parents will see that every child who is to enter school in September has

(1) Thorough examination by a doctor and dentist;
(2) Prompt correction of any remediable defects found;
(3) Vaccination against smallpox, and toxin antitoxin inoculation against diphtheria before entering school.

GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

I am glad to coöperate with the health authorities in calling these matters to your attention.

M.D.

Send YOUR Child to School Physically Fit!

COÖPERATION AS SHOWN IN DR. DOWNEY'S LETTER

Springfield National Bank Building
1537 Main Street
Springfield, Massachusetts

December 10, 1931.

George H. Bigelow, M.D.
Commissioner of Public Health
State House, Boston.

Dear Dr. Bigelow:

Your letter of December 9, regarding cards I sent to parents before the opening of school this past September was received this morning. The card used was the one suggested by Dr. Rubin of the Boston School Department. The family physician's signature apparently gave the personal touch that attracted parents' attention and the response I received was so great that my usual office hours had to be extended on many occasions. I had my secretary send the cards to addresses taken from my obstetric engagement books of four, five and six years ago. This brought the cards into the homes where there were children of early school age.

Vaccination and immunization against diphtheria make up the service most requested, but many undernourished children of the tubercular type, but not actively tubercular, were brought in for whom much could be done. Many children too, not of school age, came with the older children for treatment and advice.

I was most agreeably surprised to see how keenly alert most of the mothers were toward the benefits of preventive medicine. I believe that the radio, lectures and literature have had a deeper effect on the laity than most of us realize and I was deeply interested in the amount of knowledge most parents possess regarding the dangers connected with measles, whooping cough and other communicable diseases.

Among those to whom I sent a card was a mother who writes the Home Page in the Knights of Columbus magazine called the *Columbia*. In the following month's issue she wrote an article on care and preparation of children about to enter school and described what the Public Health Department of Massachusetts was doing in this matter and quoted the card, so in all I believe this card would be a great success if the physicians used it and received the coöperation from the parents that I received.

Very truly yours,
(signed) CHARLES J. DOWNEY, M.D.

NOTICES

THE BOSTON CITY HOSPITAL CLINIC

The January Clinic at the Boston City Hospital will be held in the Surgical Amphitheatre January 19, 1932 at 8:00 P. M.

Dr. David Rapport (Professor of Physiology Tufts

Medical School), "The Physiological Aspects of Dyspnea."

Dr. George P. Sanborn (Immunological), "Allergic Dyspnea."

Dr. Thomas K. Richards (Surgical), "Dyspnea in College Athletes."

Dr. Cadis Phipps (Physician-in-Chief), "Discussion."

COMMITTEE ON CLINICS,
Boston City Hospital.

A FURTHER REFERENCE TO PLACES WHERE THE ASCHHEIM-ZONDEK TEST IS BEING DONE

Information has been submitted that the statement that a person connected with the Staff of the Boston Dispensary is doing this test should be amplified showing that this person is making the test in the Research Department of Tufts College Medical School in connection with the Boston Dispensary.

MEDICAL CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 P. M., on Thursday, January 7, in the Amphitheatre of the Peter Bent Brigham Hospital, a medical clinic will be given by Dr. Henry A. Christian, to which physicians are cordially invited. The clinics will be held regularly on Thursday afternoons.

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following-named open competitive examination:

Junior Medical Officer (Interne)

Applications for the position of junior medical officer (interne) must be on file with the Manager of the Fourth U. S. Civil Service District, Washington, D. C., not later than January 19, 1932.

The examination is to fill vacancies in Saint Elizabeth's Hospital, Washington, D. C.

The entrance salary is $2,000 a year, less $60 a year for quarters.

Full information may be obtained from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city or from the United States Civil Service Commission, Washington, D. C.

RADIO HEALTH MESSAGES

STATE HOUSE BROADCAST

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 12:30 P. M.

The various activities of the Department are discussed by the Directors of its nine Divisions.

RADIO HEALTH FORUM

Directed by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 4:50 P. M.

Queries from the public are answered under the sponsorship of the Department.

Questions on Health and Prevention of Disease may be sent to: Radio Health Forum, State Department of Public Health, State House, Boston.

PROGRAM

SPECIAL SERIES OF BROADCASTS

Sponsored by the Massachusetts Department of Public Health. Courtesy WEEI. Mondays at 7:15 P. M.

WHITE HOUSE CONFERENCE ON CHILD HEALTH AND PROTECTION

Round Tables

1932

January

4 Round Table No. 3—Health in Education—Education in Health
Conducted by Raymond Patterson, Ph.D.

11 Round Table No. 4—What a Community Owes to Its Children
Conducted by Lila Owen Burbank, M.D.

18 Round Table No. 5—Unto the Least of These
Conducted by Mr. Alfred F. Whitman

REPORT AND NOTICES OF MEETINGS

THE CLINICAL MEETING OF THE MASSACHUSETTS GENERAL HOSPITAL STAFF

The regular clinical meeting of the staff of the Massachusetts General Hospital was held on December 10. The discussion was concentrated on the medical complications of surgical patients. Dr. G. W. Holmes presided as chairman.

Two medical cases illustrating the production of edema by lowering the blood protein level were presented by Dr. Pinckney. The first was a 15-year-old girl who for two years had suffered from loss of strength and increase in weight. On admission she showed generalized edema and ascites. In the hospital her urine output ranged up to 500 cc. daily. It contained 5-15 grams of albumin per liter, a few white cells, many casts, and only rare red cells. The blood non-protein nitrogen was normal, the cholesterol 650 milligrams, and the protein 3.4-4 grams per cent. The diagnosis was nephrosis; the edema resulted from the great urinary loss of protein.

The second case was a 49-year-old male who complained of loss of weight and vomiting. Two years previously he began to have progressive dysphagia. For the year before admission he took only liquids, while for six months he has been vomiting after taking them. He lost ninety pounds in two years. X-ray showed an obstruction at the lower end of the

esophagus. He was treated by nutrient enemata and clyses, after which he developed edema of the extremities. Dr. Jones stated that his edema was due to insufficient intake of protein. The muscular tissue which he lost before admission had been sufficient to keep the blood proteins above the critical level before liquids were given freely in the hospital.

Dr. Arlie V. Bock discussed the "Evaluation of Surgical Risk from the Viewpoint of an Internist." He recommended several procedures before surgery is undertaken on a patient.

A thorough case history always should be taken. Surgical histories are too often limited to the presenting symptom, failing thereby to discover some underlying disease. A careful physical examination should follow. The heart and lungs must be investigated especially carefully. In Dr. Bock's experience, hypertensive and arteriosclerotic patients are good operative risks if there is not too great cardiac hypertrophy and there are no cardiac symptoms. Rheumatic valvular disease in a competent heart is not a contra-indication.

Proper preparation for operation is necessary. Special care should be given those patients on whom elective surgery is to be done. The influence of rest is extremely important. If possible this should not be shorter than 48 hours. The water balance should be maintained before operation. An intake of 1500 cc. should be obtained by mouth if possible. Saline is indicated if there has been vomiting; carbohydrate in case of jaundice. It is possible to give too much fluid. It is possible that a level of water tolerance is reached sooner in the jaundiced and anemic. Experimental and clinical evidence shows that it is only rarely that a cardiovascular upset can be brought on by giving too much fluid too rapidly. Other important measures include transfusion, adequate sleep, relief of constipation and reduction of weight. Specific preoperative treatment in hyperthyroidism and diabetes should be used.

It is necessary postoperatively to maintain the fluid balance, to relieve distention, to give the correct diet, and to recognize early complications, either pulmonary or local.

Dr. Bock analyzed 100 cases operated on in the past few months. He suggested that more attention be paid to blood counts and smears before and after operation. Postoperative urines showed very high specific gravity, indicating poor observation of intake. He believes that x-ray treatment should be employed more frequently after operations for malignancy.

Dr. Chester M. Jones spoke on "Nutritional Edema as a Postoperative Complication." He stated that little attention had been paid to the subject previously. He has observed 30 cases in the past year, and believes that there must have been many more. Most of the group showing edema were subjected to gastric or intestinal surgery.

Nutritional edema was described at least a century ago. The mechanism has only recently become somewhat clarified through the work of Starling, Van Slyke and others. The normal protein level of the blood is 6.2 to 7.5 grams per cent.; the critical level for the production of edema is about 5.5. Albumen is the important protein. Edema is rarely observed when it is more than 2.9.

The causes of edema include increased venous pressure, increased capillary permeability, and osmotic pressure changes. Osmotic changes are due to a reduction in serum protein from starvation, albuminuria, serum drainage, diarrhea, or hemorrhage. Retention of base from diminished excretion or increased intake, or the flooding of the body with an excess of fluid, especially by clysis, are contributing factors in the presence of osmotic pressure changes.

Several cases which showed postoperative edema were discussed. The group of 30 patients nearly uniformly showed a reduction of blood protein below the critical level. The edema in most cases was not fatal. One case, however, died of it. Some showed evidence of gastric stasis suggesting edema of the gastro-intestinal tract; some had diarrhea indicating intestinal edema; and some had pulmonary edema.

To prevent its occurrence, undernourished cases should have a blood protein determination before operation. If the level is low and the patient is unable to eat properly, transfusion is indicated. After operation food should be given as soon as possible. Clysis should not be employed too freely. If edema appears, transfusion, hypertonic glucose, and diuretics, especially the mercurials, should be employed. Digitalis is of little value.

Dr. Donald King discussed the "Prevention of Postoperative Pulmonary Complications." He has carefully followed all abdominal operations for the past year, treating alternate cases with carbon dioxide, leaving the others as controls.

During the first few months of the experiment it appeared that the treated cases had a lower incidence of postoperative pulmonary complications. Now it appears that there is no very significant difference in the two series. Such complications resulted in 18.1 per cent. of the untreated, in 19.3 per cent. of the treated. Moderate or severe complications were observed in 9.4 per cent. of the untreated, in 7.4 per cent. of the treated. There were five fatalities in the untreated series due to the pulmonary complication, compared with three in the treated.

Dr. King concluded that carbon dioxide is not a real preventive of the complications. Good nursing including especially frequent turning of the patient is of more value than carbon dioxide; the latter practice, however, appears to reduce the number of serious complications.

AMERICAN PUBLIC HEALTH ASSOCIATION

Washington Selected as Place for Sixty-first Annual Meeting

Many associations have decided to hold their annual conventions in Washington in 1932. The American Public Health Association, oldest and strongest organization of its kind on the continent, is one of those. Its sixty-first annual meeting will be held in Washington from October 24 to October 27. The Willard Hotel will be headquarters.

The annual meetings of the American Public Health Association attract an attendance of about 2,000 from every state in the Union, from Canada, Mexico and even from abroad. The scientific programs are planned to interest health officers, nurses, food and nutrition experts, sanitary engineers, school physicians, directors of hospitals, laboratories and clinics, child and industrial hygienists, and specialists in all branches of public health.

The program committee will begin its work at a meeting to be held in New York early in January.

The local committee in charge of local arrangements has already begun to function, under the direction of the General Chairman, Dr. William C. Fowler, Health Officer of Washington.

Additional information may be obtained from the office of the American Public Health Association, 450 Seventh Avenue, New York, N. Y.

THE WILLIAM HARVEY SOCIETY

Friday, January 8, 1932, 8:00 P. M., at the Beth Israel Hospital.

Speaker: Hon. James M. Curley, Mayor of Boston.

Subject: "What the City of Boston Is Doing to Promote the Public Health."

Chairman: Dr. Charles E. Wilinsky, Director, the Beth Israel Hospital.

WATERTOWN PHYSICIANS' SOCIETY

The next regular monthly meeting of the Watertown Physicians' Society will be held January 4, 1932 at 128 Mt. Auburn Street, Watertown, at 8:30 P. M. The speaker for the evening will be Dr. Benjamin Tenney, Jr. Subject — Some Common Obstetrical Problems.

Eugene F. Gorman, M.D., *Secretary.*

WALTHAM MEDICAL CLUB

The Club will meet at the Library Room of the Waltham City Hall, on Thursday, January 7, at 8:30 P. M., 1932. (Tel. Wal. 4042.)

Speakers: Drs. N. A. Nelson, J. Dellinger Barney, Austin W. Cheever, Arthur C. Pearce.

Subject: The Diagnosis and Treatment of Gonorrhea and Syphilis.

Interested physicians are invited to be present.

Bradbury Holbrook, *Secretary.*

NEW ENGLAND HEART ASSOCIATION

Cardiac Course

The third meeting of the Cardiac Course of the New England Heart Association for the season 1931-1932 will be held in the Boston Medical Library (John Ware Hall) on Wednesday, January 6, at 4:30 P. M.

Rheumatic Heart Disease

1. Rheumatic Infection—General Summary. Dr. T. Duckett Jones.
2. Diagnosis and Clinical Features. Dr. William B. Breed.
3. Treatment. Dr. William H. Robey.
4. Discussion. Dr. John Lovett Morse.

Paul W. Emerson, *Secretary.*

HARVARD MEDICAL SOCIETY

Next meeting in the Peter Bent Brigham Hospital Amphitheatre (Van Dyke Street entrance), Tuesday evening, January 12, at 8:15 o'clock.

PROGRAM

Presentation of cases.

Some Experimental Observations on the Thyroid Gland, by Dr. William F. Rienhoff, Jr., of the Surgical Department, Johns Hopkins Medical School.

Medical students and physicians are cordially invited to attend.

John Homans, *Secretary.*

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

January 4—Watertown Physicians' Society. See notice elsewhere on this page.

January 6—New England Heart Association. See notice elsewhere on this page.

January 7—Medical Clinic at the Peter Bent Brigham Hospital. See page 1319.

January 7—Waltham Medical Club. See notice elsewhere on this page.

January 8—William Harvey Society. See notice elsewhere on this page.

January 12—Harvard Medical Society. See notice elsewhere on this page.

January 19—The Boston City Hospital Clinic. See page 1318.

March-April, 1932; Autumn, 1932—International Postgraduate Courses in Berlin. See page 1169, issue of December 10.

April 4-8, 1932—The American College of Physicians. See notice on page 1232, issue of June 4.

May 9-13, 1932—American Medical Association, New Orleans, La.

June 8, 9, 10, 1932—Massachusetts Medical Society, Hotel Statler, Boston.

October 24-27, 1932—American Public Health Association. See notice elsewhere on this page.

DISTRICT MEDICAL SOCIETIES

Essex North District Medical Society

January 13, 1932—Kenoza Country Club, Haverhill. 12:30, Dinner. Dr. George H. Bigelow, Commissioner of Health of Massachusetts: "The Relationship Between the General Practitioner and the Department of Public Health, Past, Present and Future."

E. S. BAGNALL, M.D., Secretary.

May 4, 1932—Annual meeting at Lawrence.

Essex South District Medical Society

January 6, 1932, Wednesday—Danvers State Hospital, Hathorne. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Harry Solomon, Boston. Subject: Modern Treatment of Syphilis.

February 3, 1932, Wednesday—Council Meeting, Boston.

February 10, 1932, Wednesday—Hawthorne Hotel, Salem. Dinner 7 P. M. Speakers: Dr. Lincoln F. Sise and Dr. Harry H. Germain. Subject: Selection of the Anesthetic for the Patient and Operation. Dr. Sise to speak from the viewpoint of the Anesthetist, and Dr. Germain from the viewpoint of the Surgeon.

March 2, 1932, Wednesday—Lynn Hospital. Clinic 5 P. M. Dinner 7 P. M. Subject to be announced later. Speaker: Dr. Elmer W. Barron, Boston.

April 6, 1932, Wednesday—Essex Sanatorium, Middleton. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Arthur P. Wakefield, State Department of Health. Subject: 10-Year Tuberculosis Program in the Public Schools.

May 5, 1932, Thursday—Censors' Meeting, Salem Hospital, 3:30 P. M.

May 10, 1932, Tuesday—Annual Meeting. The Tavern, Gloucester. Speaker and subject to be announced later. Ladies invited.

Franklin District Medical Society

Meetings will be held on the second Tuesday of January, March and May at the Weldon, Greenfield, at 11 A. M.

CHARLES MOLINE, Secretary.

Middlesex East District Medical Society

At a meeting of the executive committee the following schedule for the Middlesex East District Medical Society was arranged:

January—At Melrose.

March—At Reading.

May—At Woburn.

All meetings on the second Wednesday of each month unless otherwise announced.

Norfolk District Medical Society

January 26, 1932—Boston Sanatorium, Mattapan. Dr. Timothy J. Murphy. Meeting to be devoted to Diseases of the Chest.

February 23, 1932—Place to be announced. Clinico-Pathological meeting, Dr. Frank S. Cruickshank, Dr. F. B. Mallory, or a representative from his department.

March 29, 1932—Place to be announced. Boston Public Health Meeting. Speakers, Honorable James M. Curley, Dr. Francis X. Mahoney, Dr. Charles Willinsky, Dr. W. H. Griffin.

May, 1932—Annual Meeting, date and place to be announced.

May 5, 1932—Censors' Meeting for examination of candidates. Roxbury Masonic Temple, 171 Warren Street, Roxbury, 4 P. M. Fee $10.00 payable at time of examination. All candidates will have applications in the hands of the secretary one week prior to this date. All candidates from Medical Schools not on approved list of Society must have application complete two weeks prior to date of examination.

F. S. CRUICKSHANK, Secretary.

Norfolk South District Medical Society

January 7—Speaker: William Reid Morrison, M.D. Subject: Stomach Surgery.

February 4—This meeting will be held at the Quincy City Hospital. The program will be furnished by the members of the hospital staff.

March 3—Speaker: Roderick Heffron, M.D. Subject: Pneumonia.

April 7—To be announced later.

May 5—Annual meeting.

The time of all meetings is 12 o'clock noon. All meetings, except February 4, will be held at the Norfolk County Hospital, South Braintree. Censors will meet on May 5 at 11:15 A. M. at the Norfolk County Hospital.

N. R. PILLSBURY, Secretary.

Suffolk District Medical Society

January 27, 1932—General Meeting in Association with the Boston Medical Library. Titles and speakers to be announced later.

February 24, 1932—Clinical Program, the Children's Hospital.

March 30, 1932—Clinical Program, New England Deaconess Hospital.

April 27, 1932—The Annual Meeting, Boston Medical Library. Election of Officers.

The Medical Profession is cordially invited to attend all of these meetings.

GEORGE S. DERBY, M.D., President.*
LELAND S. McKITTRICK, M.D., Secretary.
HILBERT F. DAY, M.D., Boston Medical Library.

*Deceased.

Worcester District Medical Society

Wednesday evening, January 13, 1932—Worcester City Hospital, Worcester, Mass. 6:30—Dinner, complimentary by City Hospital. 7:45—Program: To be announced later.

Wednesday evening, February 10, 1932—Worcester State Hospital. 6:30—Dinner, complimentary by the Worcester State Hospital. 7:45—A psychiatric program to be announced later.

Wednesday evening, March 9, 1932—Memorial Hospital, Worcester, Mass. 6:30—Dinner, complimentary by Memorial Hospital. 7:45—A pediatric meeting with subjects to be announced later.

Wednesday evening, April 13, 1932—Grafton State Hospital, North Grafton, Mass. 6:30—Dinner, complimentary by Grafton State Hospital. 7:45—Program to be announced later.

Wednesday afternoon and evening, May 11, 1932—Annual Meeting. Program to be announced later.

ERWIN C. MILLER, Secretary.

BOOK REVIEWS

The Collected Papers of the Mayo Clinic and the Mayo Foundation for 1930. Volume XXII. Edited by MRS. MAUD H. MELLISH-WILSON, RICHARD M. HEWITT, B.A., M.A., M.D., and MILDRED A. FELKER, B.S. Octavo Volume of 1125 pages with 234 illustrations. Philadelphia and London: W. B. Saunders Company, 1931. Cloth $13.00 net.

The general arrangement of this volume corresponds with that of previous editions and furnishes a valuable guide to the various activities of this large clinic. In addition to articles that are given in detail, references by title are furnished to other studies that took place during the year. The majority of the subjects are clinical; but the more important experimental studies are also included.

It is, perhaps, not fair, out of such a wealth of material, to select any individual articles for comment but the reviewer found the article on pancreatic cysts and its accompanying bibliography and the article on resections and obstruction of the colon of particular interest.

These yearly volumes should prove of especial value to the general practitioner, furnishing as they do information in so many different fields of clinical medicine, together with extensive references to the general literature on the subjects discussed.

Reclaiming the Drinker. By CHARLES B. TOWNS. Published by Barnes & Co., 521 Fifth Avenue, New York City.

This short book, although commendable in purpose, lacks medical critique, as is to be expected in a treatise written by a layman. When he quotes the unfavorable effects of alcohol and omits the favorable effects in referring to Stockard's work, he may well be charged with special pleading, if not bias. When he states—"When a patient leaves this hospital we are through with him. We never communicate with a patient either directly or indirectly," and then expresses optimistic belief in his detoxication process, one cannot but wonder on what his confidence is based.